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U.S. INFORMATION SERVICES ANNUAL REPORT (MAN)

LETTER OF TRANSMITTAL

Dear Client,
Enclosed is your copy of the 1993 U.S. Information Services Industry Report. This document, published annually by INPUT, provides a concise look at the trends, issues and structure of this dynamic $124 billion industry.

Each of the eight major product/service sectors (delivery modes) are analyzed, leading vendors and their market shares are noted, driving forces in the industry are discussed, and recommendations and conclusions are provided for each mode:

- systems operations (outsourcing)
- systems integration
- professional services (IT related)
- applications software/turnkey systems products
- systems software products
- processing services
- network services

We are confident that the 1993 report will provide you with valuable insights into this very dynamic industry, which continues double digit growth as the United States emerges from the recent recession. I will be pleased to hear your suggestion, questions or comments.

Sincerely,

Bob Goodwin

Dear Colleague:

Enclosed is your copy of the *U.S. Information Services Industry Annual Report, 1993*. This document, published annually by INPUT, provides a concise look at the trends, issues, and structure of this dynamic $124 billion industry.

Each of the eight major product/service sectors (delivery modes) are analyzed, leading vendors and their market shares are noted, driving forces in the industry are discussed, and recommendations and conclusions are provided for each mode:

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Sincerely,

Bob Goodwin

Robert Goodwin
Manager, Information Services Market Analysis Program

Enclosure

MAY 1993

U.S. INFORMATION SERVICES ANNUAL REPORT

1993

INPUT®

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U.S. Information Services
Market Analysis Program

U.S. Information Services Annual Report, 1993

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INPUT exercises its best efforts in preparation of the information provided in this report and believes the information contained herein to be accurate. However, INPUT shall have no liability for any loss or expense that may result from incompleteness or inaccuracy of the information provided.

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Abstract

INPUT's 1993 Information Services Annual Report provides a concise look at the $124 billion dollar U.S. market for information services and products. Designed for the business executive or analyst who needs an understanding of the entire industry, this report identifies major buyer issues, technology and market trends, driving forces, leading vendors and their market shares, and recommendations and conclusions for each of the major delivery modes tracked by INPUT:

- Systems operations (Outsourcing)
- Systems integration
- Professional services (Information technology related)
- Applications software/turnkey systems products
- Systems software products
- Processing services
- Network services

This report contains 100 pages and 62 exhibits.

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I

Introduction

A

Purpose and Organization

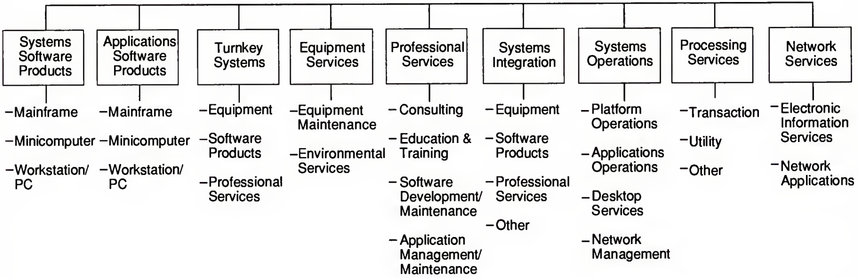
The 1993 Information Services Annual Report covers the full spectrum of information services markets in the United States. The report will identify and analyze industry trends, highlight technology developments and issues, scope current market size and provide five-year forecasts, identify leading vendors and their market shares, and make recommendations for vendors and users of information services and products to maximize their opportunities in this dynamic market.

The information services industry has been tracked by INPUT continuously since 1974, during years of dramatic growth, which has slowed in the last two years. Nonetheless, the potential growth forecast by INPUT still makes this an attractive market for many vendors.

INPUT defines this market as shown in Exhibit I-1. Primary focus of the report will be on the "service/product categories (delivery modes)" shown at the top row of the exhibit. Further, more detailed explanations of INPUT's definitions and industry segmentations are found in Appendix B of this report.

EXHIBIT I-1

Information Services Industry Structure—1993


Systems Software Products
–Mainframe
–Minicomputer
–Workstation/ PC
Applications Software Products
–Mainframe
–Minicomputer
–Workstation/ PC
Turnkey Systems
–Equipment
–Software Products
–Professional Services
Equipment Services
–Equipment Maintenance
–Environmental Services
Professional Services
– Consulting
– Education & Training
– Software Development/ Maintenance
– Application Management/ Maintenance
Systems Integration
– Equipment
– Software Products
– Professional Services
– Other
Systems Operations
– Platform Operations
– Applications Operations
– Desktop Services
– Network Management
Processing Services
–Transaction
–Utility
–Other
Network Services
– Electronic Information Services
– Network Applications

Source: INPUT

The report is organized as follows:

Chapter II provides an overview of the general business climate for information services, describes major driving forces and user issues, defines the overall market and its growth, identifies the largest vendors and their market shares, and relates general conclusions about the industry.

Chapters III through IX each cover individual service/product categories, in each case providing an expanded treatment of buyer issues, trends, forecasts, leading vendors and their market shares, and recommendations and conclusions.

Readers should be able to gain a broad understanding of the forces at work in the information services industry, weigh potential market opportunities and risks, and indemnify key service providers.

B

Scope

This report covers the United States Information Services Market exclusively. Obviously, there are major available markets outside the U.S., although this is still the largest country market, by a wide margin. Readers interested in comparable studies of international markets should consider the 1993 Worldwide Information Services Report, just released by INPUT.

INPUT also tracks 15 vertical markets and seven cross-industry markets, reporting on them annually. These markets are not discussed in this study. See Section I-E for a list of those reports.

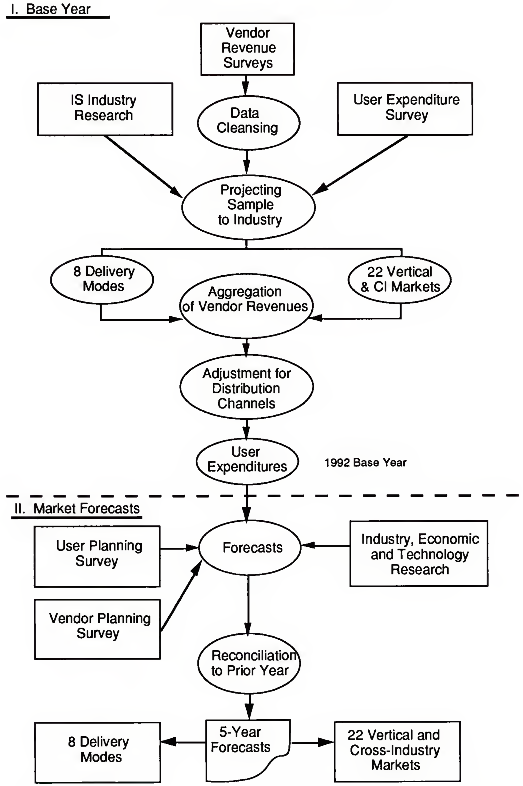
C

Methodology

INPUT's methodology for market analysis and forecasting is summarized in Exhibit I-2. As in past years, INPUT has continued to survey information services vendors to determine their U.S. information services revenues, and to query information systems organizations about expenditures and outside services acquisition plans. INPUT interviewed vendors a second time to understand their views of market opportunities over the short and long terms.

EXHIBIT I-2

INPUT Research Methodology


I. Base Year
Vendor Revenue Surveys
IS Industry Research
Data Cleansing
User Expenditure Survey
Projecting Sample to Industry
8 Delivery Modes
Aggregation of Vendor Revenues
22 Vertical & CI Markets
Adjustment for Distribution Channels
User Expenditures
1992 Base Year
II. Market Forecasts
User Planning Survey
Forecasts
Industry, Economic and Technology Research
Vendor Planning Survey
Reconciliation to Prior Year
8 Delivery Modes
5-Year Forecasts
22 Vertical and Cross-Industry Markets

Ongoing Research - Much of the data on which this report is based has been gathered during 1992 and early 1993 as part of INPUT's ongoing market analysis program. Trends, market sizes, and growth rates are based upon INPUT research and over 3,000 in-depth interviews with users and IS vendors serving all market sectors. INPUT maintains ongoing relationships with, and a data base of, all users and vendors that it interviews. Interviewees for the research portion of this report were selected from this data base of contacts.

Resources - Extensive use was made of INPUT's corporate library located in Mountain View, California. The resources in this library include on-line periodical data bases, subscriptions to a broad range of computer, technical, scientific and general business periodicals, continually updated files on over 3,000 information services vendors, and the most up-to-date U.S. Department of Commerce publications on industry statistics.

Forecast Estimates - Vendors, when responding to interviewers or questionnaires, may be unwilling to provide detailed revenue breakouts by delivery mode or industry. Also, vendors often use different categories of industries and industry segments, or view their services as falling into different delivery modes from those used by INPUT. Thus, INPUT must estimate revenues for these categories on a best-effort basis. For this reason, the delivery mode and individual segment forecasts should be viewed as indicators of general patterns and trends rather than specific, detailed estimates for individual years.

Rounding - When displaying market forecast values in bar and column charts, INPUT rounds these amounts for ease of visual reference. Markets of $1 billion or more are rounded to the nearest $50 million; $100 million to $999 million to the nearest $10 million; and $50 to $99 million to the nearest $5 million. Actual values are shown in charts for markets of $49 million or less, in Appendix A tables, and in chapter text.

INPUT's annual forecasting process is broken into two major parts: base-year expenditure calculations and market forecasts. Each is briefly described below.

1. Base-Year Expenditure Calculations

- INPUT determines previous-year information services revenues for the 9 delivery modes and 22 industry and cross-industry sectors for hundreds of vendors. Estimates rely upon interviews, public data, and INPUT's own estimates.

- The initial data are projected to represent the entire information services industry.

- Adjustments are made to eliminate duplications due to distribution channel overlap and to assure that captive information services expenditures are not included.

- The result is a base-year (1992) user expenditure for each of the 22 vertical and cross-industry sectors and the eight delivery modes.

2. Market Forecasts

- In the forecasting step, INPUT surveys information systems executives to determine their projected expenditure levels, both in aggregate and for each of the outside information services categories.

- In addition, a second set of vendor interviews is conducted later in the year to obtain an understanding of how key vendors view the market and its opportunities.

- The result is a five-year forecast for each of the 22 vertical and cross-industry sectors and for the eight delivery modes.

To complete the process, INPUT reconciles its new forecasts with those from the previous year. Differences due to market restructuring and other factors are explained. One may use these projections to track INPUT's forecasts from year to year.

D

Economic Assumptions

INPUT forecasts are presented in current dollars (i.e., 1997 market sizes are in 1997 dollars including inflationary forecasts). In developing the five-year forecasts, INPUT has incorporated economic assumptions regarding the outlook for the U.S. economy as a whole (see Exhibit I-3).

The GNP and GNP Deflator growth rates used in INPUT's market projections for 1992 through 1998 are from the CONSENSUS™ forecast, Blue Chip Economic Indicators of Sedona, Arizona. The Blue Chip CONSENSUS forecast is derived from a panel of economists representing leading financial, industrial, and research firms across the U.S. and has a 13-year track record of balanced and accurate projections.

EXHIBIT I-3

GDP and Inflation Growth Rate Assumptions, 1993

Overall	1992E	1993E	1994E	1995E	1995E	1997E	1998E	Avg. 92-97%	Avg. 93-98%
Nominal GDP	5.3	6.2	6.7	6.1	6.1	5.9	6.1	6.2	6.2
GDP Deflator	2.9	3.2	3.6	3.7	3.6	3.6	3.5	3.5	3.6
Real GDP	2.4	3.0	3.0	2.3	2.4	2.2	2.5	2.6	2.5

Source: Blue Chip Economic Indicators

E

Related Reports

Related reports of interest to the reader are as follows:

- *Worldwide Information Services Forecast, 1992-1997*
- *Pricing and Marketing Professional Services, 1992*
- *U.S. Professional Services Market Analysis Report, 1992-1997*
- *U.S. Application Solutions Market Analysis Report, 1992–1997*
- *U.S. Network Services Market Analysis Report, 1992–1997*
- *U.S. Processing Services Market Analysis Report, 1992–1997*
- *U.S. Systems Software Products Market Analysis Report, 1992–1997*
- *U.S. Systems Integration Market Analysis Report, 1992–1997*
- *U.S. Systems Operations Market Analysis Report, 1992–1997*
- *U.S. Industry Sector Markets, 1992–1997* (15 reports on all major industry sectors, e.g., insurance)

- *U.S. Cross-Industry Sector Markets, 1992–1997* (7 reports on information services markets that serve all vertical industry sectors, e.g., accounting)

II

Information Services Market Overview

A

General Business Climate

Despite well-justified concerns about the painfully slow growth rate in the U.S. economy in 1992, information services industry vendors report that the environment still offers significant opportunities, together with challenges, as indicated in Exhibit II-1.

EXHIBIT II-1

Impact of the Economic Environment

Factor	Impact on the Information Services Industry
Low level of growth in U.S. economy	Increasing need for application systems that can improve revenues and restructure business
Slower growth rate for U.S. information services industry	Likelihood of slower growth rates for vendors who pursue business as usual
Annual increase in information services business of over $10 billion	Significant target for aggressive vendors
Foreign market opportunities and competition from foreign vendors in the U.S. economy	Need for information technology to increase product quality and customer services

Of note are:

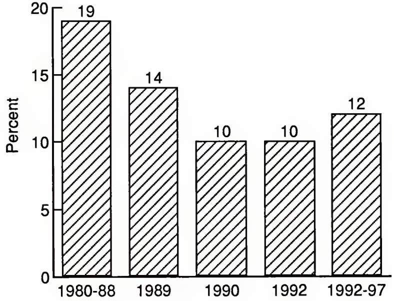
- The annual increase of business volume in the industry of over $10 billion, making information services one of the more attractive areas of opportunity in the economy.

- Demands imposed by the low level of economic growth have led to vendor projects that hope to increase revenues through improved geographical analysis of sales coverage, and improved service and product quality through the use of client/server systems that enable users to communicate between functions more effectively.

The U.S. information services industry is growing at a slower rate in the 1990s than it did in the 1980s, as shown in Exhibit II-2. Although the industry is rebounding slightly from the recession, it is not likely to return to the growth rates of the early 1980s. Vendors cannot rely on a favorable growth climate to help many of their product and service initiatives.

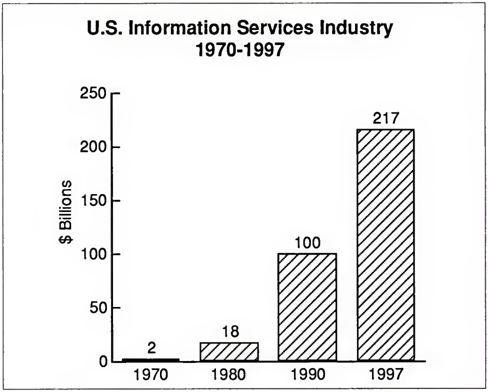
EXHIBIT II-2

U.S. Information Services Industry Annual Growth Rates



- As Exhibit II-3 shows, the industry increased in size over five times during the 1980s and is 50 times larger than it was in 1970, when the industry represented $2 billion in user expenditures.

EXHIBIT II-3



- By 1997, the U.S. information services industry is expected to grow to over $200 billion, and the annual increase in absolute terms will be in the $20-25 billion range.

High rates of growth for the sale of software products and professional services provided the engine for growth during most of the last decade. As rate of increases in sales of these delivery modes declined, there were concerns about the continuing vigor of the information services industry; however:

- Growth of U.S. information services expenditures has been reinvigorated by the strong interest in outsourcing, restructuring, and downsizing business application systems, and by an increasing use of network services. In addition, there has been continuing growth in systems integration services.

- In effect, the information services industry has been shifting from sales of products and services for new application systems to sales that will upgrade, manage and outsource the use of information technology. This shift will continue to be driven by business needs to restructure in order to achieve greater effectiveness and productivity, as well as increased revenues.

On a worldwide basis, the industry continues to experience higher growth rates—close to 20%—and many U.S. vendors are experiencing growth overseas that exceeds that of the U.S. industry as a whole.

- This growth is primarily due to the relative stage of automation in many foreign markets, but the focus on specific industry markets in some countries is also a strong factor.
- Inflation rates and somewhat stronger economies have also helped to drive the global use of information services in the last few years, but these factors may have less of an impact at this time.

B
Market Forces

The set of market forces noted in Exhibit II-4 will continue to have an impact on the information services industry in 1993 timeframe and will also have a measurable effect on the overall growth rate for the five-year forecast period. Each force will affect the industry as a whole, as well as each of the delivery mode sectors used by INPUT to analyze the industry and its key trends.

EXHIBIT II-4

U.S. Information Services Industry
Primary Driving Forces, 1992-1997

- Slower economic growth
- Globalization
- Growing influence of large vendors
- Outsourcing (buy versus make)
- Shift in technology
- The changing buyer

1. Slower Growth

The first of these forces, the interaction of the economy with the overall size of the industry, is a significant factor in user expenditure levels for information services.

- Since economic growth is slow and inflation remains low, there is less increase in industry sales due to price increases.

- Real economic growth, which had been modest over the few years prior to the recession that started in late 1990, will continue to be low during the forecast period. Blue Chip economic indicators forecast a nominal growth rate of 6.2% during the next five years but 3.5% of that is anticipated to be inflation related, leaving a real GDP annual growth rate during 1992-1997 of 2.6%. Consequently, low growth may continue to defer plans for the expanded use of information services in many industry sectors.

- The shift of information processing to smaller computers, which has been encouraged by the economy as well as by the current cost and level of technology, has lowered the software products investment, based on current pricing practices. Quantities of software products sold will increase, but revenue levels will grow at more modest rates unless software products are sold together with professional or systems integration services where price might be increased in line with actual value.

1992 tended to follow the pattern of 1991. While there was little or no real growth in the overall economy and modest inflationary growth in the range of 5%, the information services industry grew at an annual rate of 10%.

The slow upturn expected will have the following positive and negative impacts on the U.S. information services industry in the near term:

- Positive impacts:
    - There is increased motivation to buy new information technology (IT) solutions rather than make them, in particular for larger systems requirements. Response time and impact on business operations are the key criteria supporting use of outside services.
    - The interest in outsourcing, which permits organizations to redeploy capital investments and lower direct staffing levels, is being encouraged by slow economic conditions and the desire to lower costs.
    - A tight economy is helping develop interest in lower-cost solutions that come from client/server-based applications software products.
    - A recognition by many business that fundamental process re-engineering is required for improved profitability and competitiveness.

- Possible negative impacts:
  - Continuing uncertainties in decision processes, although not as severe as in 1991 and 1992, will cause some delays or deferrals of major information systems projects.
  - With tight constraints on external information services expenditures at some companies, management may decide to burden the internal IS staff with applications maintenance, enhancement and development assignments rather than use contracted professional services vendors; this would have a negative effect on a major segment of the industry.

2. Globalization

The second major market force, which INPUT has stressed for the past three years, is globalization. During that time more markets have opened, vendors have expanded their international focus, and users have begun to expect global capabilities.

The primary positive impact of globalization is that it enables the larger vendors to balance their businesses in multiple markets, which are less affected by market downturns.

The primary negative impact from globalization is that it may make it harder for smaller vendors to grow and/or maintain independence.

3. Large Vendors

The third market force is the influence of larger information services vendors, which has increased significantly over the past three years.

- The newer systems integration and systems operations sectors, although smaller than more traditional sectors such as professional services and processing services, are growing faster than the traditional sectors and are dominated by the larger vendors.
- A number of the larger vendors are growing faster than the overall market, and these vendors have more opportunity, based on their resources, to enter (or acquire vendors in) desirable foreign markets.
- There are also numerous smaller firms that are growing faster than the general market, but larger vendors have a disproportionate opportunity to obtain bigger jobs and continue to add large amounts of revenue to their bottom line each year.

The influence of larger vendors is also increasing in other ways. Starting with IBM, many large services vendors are making minority and majority investments in IT firms to gain influence on technology, access to software products for re-marketing, and market share.

The opportunity for the smaller, more specialized software product or services vendors is not disappearing, but it is changing in character.

- Alliances with larger vendors will be essential, at least as secondary sales and support channels.
- Specialization, in terms of the technology used or the industry served or both, will become more important and common.

The continuing increase in the strength and impact of the larger vendors will have the following positive impacts:

- The larger vendors have the financial strength to mobilize resources for very large jobs.
- The size of the vendors can help to minimize the risk of losing large contracts.
- The larger vendors have financial resources available to invest in new technologies, often through investment in smaller and specialized firms.

Smaller technology firms may need to form alliances in order to gain the same advantages larger firms have, as discussed above, and survive. Larger firms, however, tend to move more slowly, which will hamper development and acceptance of new technology. This slowness will provide opportunity to small vendors that seize technology initiatives.

4. Outsourcing

Another significant market force is outsourcing (systems operations). The recession has encouraged more companies to consider outsourcing, and interest in it has grown from the outsourcing of the management of information systems (systems management) to other types of activity—such as solutions buying, applications maintenance and applications management, as shown in Exhibit II-5.

EXHIBIT II-5

Outsourcing Trends

- Systems management
- Solutions buying
- Applications maintenance
- Applications management

- Applications maintenance—the around-the-clock support of applications systems—and applications management—contractual arrangements to manage the development and support of application systems—are new means for utilizing support from professional services vendors that provide more defined relationships and pricing.

- "Solutions" buying is support for client/server technology where a vendor will provide software products and customization to satisfy the needs of a distributed environment.

5. Technological Shift

An additional market force is the shifting technology foundation (see Exhibit II-6). This influence is related to the developments that are adding complexity to or shifting the technological basis for the use of information systems, including the following:

EXHIBIT II-6

New Technology Foundations

- International standards
- Graphical user interface (GUI)
- Client/server
- Networking and integration
- Distributed data bases
- Imaging
- Engineered/re-engineered software

- The international standards that must be considered when developing or buying software products in today's market, including the growing variety of "open systems" architectures.

- Graphical user interfaces, which are increasingly demanded by users of software products.

- Client/server architecture, which is the vehicle for downsizing application systems or portions of them for user environments.

- Networking and integration, which provide the means for distributing application systems as well as linking company functions.

- Distributed data bases, which are necessary for distributed user environments, and to support client/server computing.
- Imaging, which is the inclusion of the entire source document in the information systems application.
- Engineered/re-engineered software products that will change the approach to the maintenance and enhancement of application systems.

These shifts will make it possible for solutions to be more closely tailored to user environments and company situations. They will also create a number of opportunities for vendors.

6. Changing Buyer

The final market force to consider is the changing nature of the buyer. The decision maker for the purchase of information services remained relatively constant until the late 1980s. It was the information systems executive and key staff (systems development and data center operations managers) who decided when to go outside and what company to contract with.

This role has changed significantly in the past few years and promises to change even more. As the information services vendor moves to provide a long-term service or a full solution, the executive (in user functional areas) is becoming the buyer. The results are significant:

- Technology becomes less important and strategic business or operational impacts become more important.
- The impact of the information systems function becomes more consultative and less direct.
- The ability of functional managers to try new ideas and approaches is increased.
- Time to completion is controlled by the organization's ability to afford, not the constraints on the information systems group's ability to develop.

C

Market Size and Forecast, 1992-1997

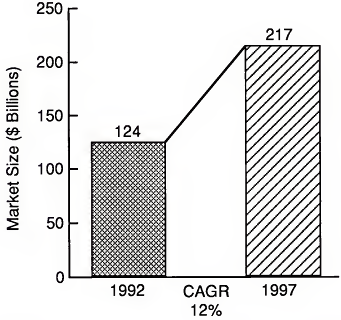
Despite the lingering effects of the 1991-1992 recession, with its severe restrictions on capital investment and general spending on information services and systems, the U.S. Market still managed to grow at a respectable 10% rate during 1992. This is a tribute to the dynamic forces of change in the industry and the large number of innovative new products

finding their way to market. While it remains a difficult, even perilous time for many marginal players, the industry as a whole will continue its steady growth, and a number of well-positioned vendors will succeed dramatically.

INPUT forecasts that the U.S. market will grow at a compound annual growth rate (CAGR) of 12% during the next five years, as shown in Exhibit II-7, to a $124 billion level in 1997. This means that real market growth in the later years of this forecast will be in the range of $15-20 million each year, another indicator of the viability of the information services market.

EXHIBIT II-7

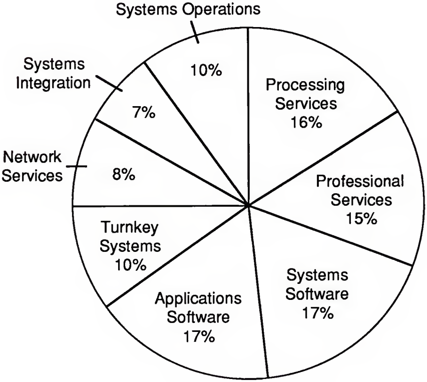
U.S. Information Services Industry
1992-1997



Within the industry structure, there is considerable variation in the size and growth rates of the eight delivery modes covered by INPUT. Exhibit II-8 shows the relative size of each of these service/product sectors. The two software product categories, taken together, comprise one third of the industry. The software industry is a very crowded field, with profit margins currently under strong downward pressure. The recent introduction of Microsoft Windows "NT", and the strong trend to client/server computing, create many opportunities for new software products within these environments. Also, the ease of vendor entry via sophisticated development tools employed on inexpensive PC/ workstation platforms continues to attract large numbers of new entrants and drive technology change at a fast pace.

EXHIBIT II-8

U.S. Information Services Industry Market by Delivery Mode, 1992



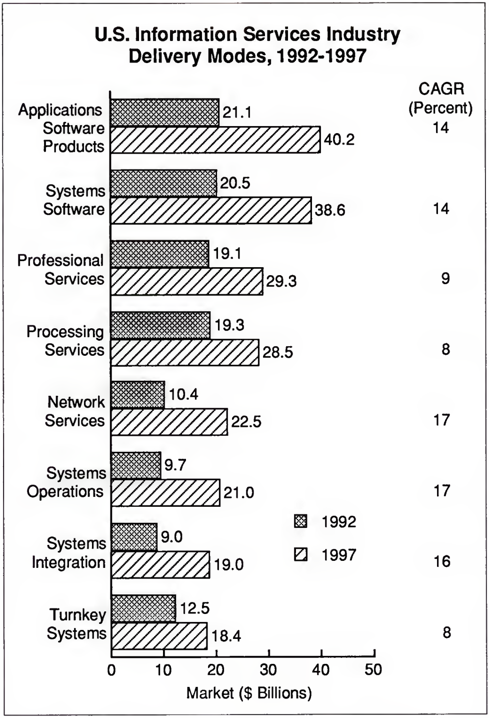
Total Market Size: $124 billion

The smallest of the eight sectors, systems integration, still represents a $9 billion market today and has attracted considerable interest and publicity, as this approach continues to be utilized in the delivery of large, complex, multi-vendor systems to end users.

Industry delivery mode size and growth rates are shown in Exhibit II-9. Growth is strongest in network services, reflecting this sector's relatively small base and rapid expansion due to strong demand for data base services, value-added networks, and electronic commerce.

Lower growth is expected in the processing services market, which has been a stable, steady growth sector for some time, due to its large size, and niche orientation to delivery of solutions and services via vendor-owned facilities and systems.

EXHIBIT II-9



Similarly, the 8% growth foreseen for turnkey systems is a manifestation of the trend toward less costly equipment, and the decision on the part of many turnkey systems vendors to concentrate on software and services, leaving low margin hardware to other distribution channels.

INPUT also categorizes the industry by its 15 vertical industry sectors. These are not treated in detail in this report, but it may be useful to present the largest vertical markets, plus those that are fastest growing, as points of interest. Exhibit II-10 identifies discrete manufacturing as the largest industry sector, a position it has occupied for some time. Continuing requirements to automate manufacturing processes and control systems will keep this market growing steadily during the rest of the 1990s.

EXHIBIT II-10

Leading U.S. Vertical Markets

Largest Vertical Markets	1992 U.S. Market ($ Billions)
Sector	
Discrete Manufacturing	13.1
Banking and Finance	12.8
Federal Government	10.7
Highest Growth Vertical Markets	**1992-1997 CAGR (Percent)**
Sector	
Telecommunications	16
Retail Distribution	14
Wholesale Distribution	13
State and Local Government	13

Banking and finance, another sector where computerization has long brought important productivity improvements, is the second largest category. The continuing pressures to reduce costs and provide fast, flexible customer service drives continuing growth in this market. Despite the well-publicized problems of the savings and loan industry, plus cyclical problems in brokerage and securities firms, high demand for information services will continue.

The federal government sector currently occupies the third largest spot, but with a significantly reduced growth rate over past years, as serious attempts continue to curtail federal spending in all categories.

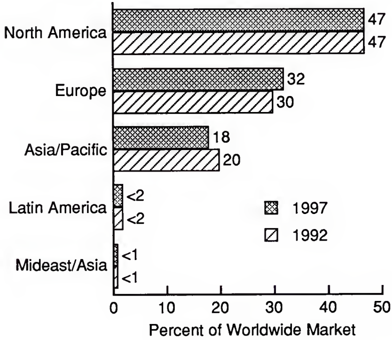
Telecommunication, retail and wholesale distribution and state and local government sectors are the fastest growth areas. Telecommunications is benefitting from the continuing investments of ATT, the "Baby Bells" and other major telecommunications firms to position themselves to deliver high-technology capabilities and solutions to their own customers, through a wide variety of vehicles.

State and local government agencies, despite well-publicized budget problems, are reacting to a significant pent-up demand for improved information systems and the need for integration of independent systems in different departments and functions. There is a strong tendency in this sector to utilize outside service to develop, deliver and even operate these systems.

While the U.S. market is still a healthy one, growth here cannot match expansion in selected countries overseas. Exhibit II-11 shows that the U.S. portion of worldwide information services revenues will actually remain static, while Europe declines slightly, and Asia increases. But within Europe, there are still unpenetrated markets which are worth targeting. For more information on this subject, see INPUT's 1993 Worldwide Information Services report, which covers 30 of the largest country markets.

EXHIBIT II-11

Worldwide Information Services Market Distribution, 1992 and 1997



D

Leading Industry Vendors

The information services market, which consists of thousands of companies, most quite small, still has a sizeable set of very large vendors who are highly visible and are able to exercise some degree of market power and control because of sheer size. This varies among the INPUT delivery modes, depending on the concentration of market share in each. When INPUT looks at the information services market as a whole, the leading vendors are those shown in Exhibit II-12.

EXHIBIT II-12

Selected Leading Information Services Vendors, 1992

Vendor	1992 U.S. Revenues ($ Billions)	Market Share (Percent) Rounded
IBM	8.1	7
EDS*	3.1	3
CSC	2.0	2
Digital Equipment	1.9	2
Andersen Consulting	1.6	1
ADP	1.4	1
Microsoft	1.0	1
Unisys	1.0	1
Hewlett-Packard	0.9	1
First Financial Mgmt.	0.9	1
GEIS	0.9	1
First Data Corp.	0.8	1
Computer Associates	0.7	1
Total	25.0	21

*Excluding GM

IBM, as expected, continues to hold a dominant market share. Despite IBM's well-publicized turmoil in recent months and serious financial losses, Big Blue remains a powerful force in the services environment and is continuing to invest significant resources in growing its market share.

This has been an acknowledged IBM strategy for some years, as declining margins in hardware have forced IBM to look to services and software for greater returns. If equipment maintenance were included (it's not a part of this study), IBM revenues from services in 1992 exceeded $18 billion.

EDS is the second ranked firm, even after its "captive" revenues from General Motors are removed. EDS is aggressively building on its strengths in systems operations (outsourcing) and systems integration, and has earned a fine reputation as a skilled provider/operator of complex systems.

Computer Sciences Corporation (CSC) is the country's largest independent provider of information technology consulting, systems integration and outsourcing. CSC has done well recently in moving from a strong Federal Government revenue base, expanding into the commercial sector and growing its market position there.

Digital Equipment Corporation (DEC) is another well-known equipment manufacturer that has prudently positioned itself to gain a growing percentage of its revenues from software products, systems integration and consulting, even as equipment sales and profits declined. DEC now generates about two billion dollars in U.S. information services markets, and is organized and well-focused to continue growth in this sector.

Andersen Consulting continues steady growth in the systems integration environment, parlayed with aggressive expansion of resources aimed at strategic consulting, business process management and change management services. Andersen's blueprint for growth in the 1990's calls for increasing leverage from strategic consulting on its already strong systems integration skill set and reputation.

The twelve vendors shown in Exhibit II-12 represent the "giants" of the very dynamic information services industry. While there will always be room for successful innovators here (this is the hallmark of the market), successful entrants will learn how to co-exist, or even better, ally themselves with one or more of these power players, to mutual advantage.

E

Summary

The early 1990s have been a period of significant change from the 1980s. These changes suggest more modest rates of growth, but a sizable amount of growth in absolute terms. In addition, a number of opportunities and challenges could have a positive effect on vendors that are able to assume a proactive role in the changes taking place. For example:

- A 1992 market of $110 billion that is growing at 12% over the next five years (CAGR) offers major opportunities.
- The increasing tendency of larger organizations to turn to vendors for IT services that include significant elements of systems management and have a solutions orientation, will lead to larger, longer term decisions for vendor business.
- The major shift in the underlying technology foundation, especially client/server computing, will create more valuable and productive application solutions, but this shift will also necessitate re-engineering, reinvestment and retraining, and require time and money.

The role of the line executive (in user functional areas) concerning the deployment of information technology continues to increase and will become more important in regard to vendor selection over the planning period.

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III

Outsourcing Market Analysis

A

Information Systems Outsourcing

INPUT defines outsourcing as the *contracting of all or a major part of an information systems process to an external vendor on a long-term basis.* The vendor takes responsibility for the performance of the process. Outsourcing is a method of acquiring a vendor to provide for existing operations, not a delivery mode. Within this framework, systems operations in its two forms, platform and applications operations, represents the major portion of the outsourcing market. It can include a variety of elements, as illustrated in Exhibit III-1. The client that chooses to procure only one of the elements is still outsourcing to a vendor.

1. Types of Outsourcing

All of the types of outsourcing agreements represent functions or processes that are performed, rather than projects that are accomplished. INPUT identifies four types of outsourcing, which are further subdivided as shown in Exhibit III-1. The intent is not to confuse the market watchers by adding categories but rather to clarify what is happening in the market by looking at each component as it develops and evolves at a different growth rate.

Systems operations still represents the largest portion of the outsourcing market, but must be subdivided into platform and applications to identify and track the changing patterns. The trend to turn over more responsibility for applications to the vendor, as well as the processing in the organization, is accelerating.

Network management and desktop services are two new outsourcing arrangements that have been spawned by the many downsizing initiatives that are appearing in all industries. It is fine to empower the user with more processing capacity and more control over application software, but connectivity and user assistance then become more difficult to manage. Outsourcing vendors are well positioned to respond to these new market demands.

Applications management consists of applications maintenance and applications development. There is evidence that this outsourcing arrangement is beginning to emerge in the market. In this instance, there is no related processing as in applications operations, but the responsibility for the applications software is turned over to a vendor.

2. Impact of Downsizing

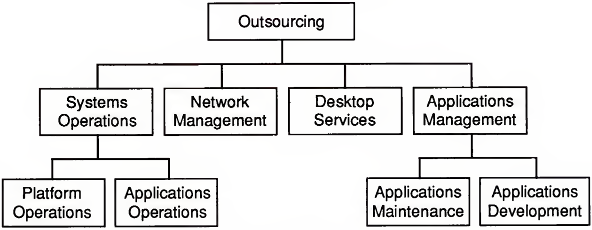
The ongoing downsizing revolution that is currently pervading the information technology (IT) market will have a profound impact on the outsourcing market. Already its effects are evident as the new outsourcing options of network management and desktop services become ever more attractive to clients looking for some way to control the proliferation of systems, user requests for help, and interconnectivity requirements.

IS managers are realizing that managing thousands of PCs and workstations, their associated (noncompatible) software, connecting these units to LANs and WANs, and responding to user hot line problems is more difficult than running a data center. These tasks are even more awesome to the user departments when they must provide their own support.

EDS and Digital Equipment Corporation (DEC) have already negotiated impressive standalone desktop services contracts worth millions of dollars. Other vendors are beginning to service this market as part of existing contracts. Still other firms are poised to make their first entry into the outsourcing market through this route. INPUT is projecting growth rates above 30% as this option becomes more recognized by the business community as another case of letting the experts run the process in a more cost-effective manner.

EXHIBIT III-1

Outsourcing Definitions


Outsourcing
Systems Operations
Network Management
Desktop Services
Applications Management
Platform Operations
Applications Operations
Applications Maintenance
Applications Development

B

Major Buyer Issues

The buyer issues presented in Exhibit III-2 have been identified by user executives as the major issues that arise when considering the outsourcing of information systems operations.

Many organizations face continuing pressure to reduce costs and preserve capital. The slow pace of economic recovery is causing even more firms to reassess how they can further reduce expenses and is changing the investment plans of their organizations.

The market continues to be extremely competitive as the reluctant consumer is courted by more firms, both domestic and foreign. Companies must serve their customers better, and in turn, they must get high-quality service from their IS departments. Many companies are becoming convinced that outside vendors can provide a higher level of service than their own internal organizations. They often feel they have more leverage over a vendor's resources than over their own.

Constantly changing technology breeds two problems for the user community. Senior management is finding it difficult to understand the new technology and is also finding it increasingly difficult to recruit staffs that can apply the new technology to meet competitive needs. Outsourcing offers options in both areas.

EXHIBIT III-2

Major Buyer Issues—1992

- Reduce costs/conserve capital
- Improve service levels
- Resolve skills shortage
- Achieve technology upgrade
- Refocus executive attention
- Lose control to vendor

Senior executives in many firms need, more than ever, to focus attention on their core business, be that making cameras or selling hamburgers. Often information systems are not considered part of that core business but a part that, nonetheless, consumes a lot of executive time for the reasons cited above. Turning over systems operations to a vendor eliminates a major demand on executives' time.

One major concern will continue to trouble companies considering outsourcing. Many feel there is no turning back once they have turned their IS operations over to a vendor. They are probably right, but two options are available and both have been demonstrated in the market place:

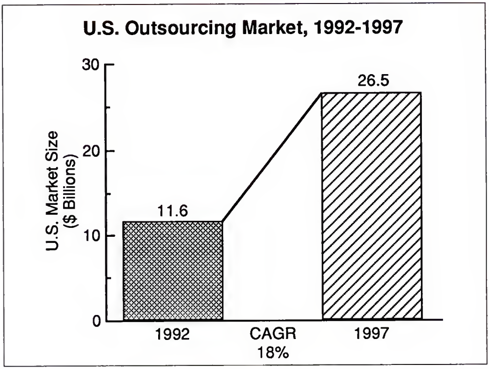
- A return plan should be created at the start of the relationship if this is a likely outcome of the outsourcing arrangement, i.e., in a transition outsourcing agreement.
- Several clients have successfully changed vendors in the past year at some cost but without major disruption in services levels. There are enough reputable vendors in the market place now to provide options.

C

Market Size and Forecast, 1992-1997

INPUT estimates that user expenditures for outsourcing were $11.6 billion for 1992 for the combined commercial and federal markets. Growing at a compound annual growth rate of 18%, these expenditures will reach $26.5 billion in 1997, as illustrated in Exhibit III-3. This represents a slight increase in the growth rate over that reported last year and reflects the continued health of the market, increasing acceptance of the outsourcing option as a viable one, and the emergence of other outsourcing options in response to the downsizing revolution.

EXHIBIT III-3



There continue to be major differences between conditions in the federal government and commercial markets. In the federal market, the emphasis on budget constraints and the recurring federal budget deficit are the overriding considerations. Defense budgets are being cut drastically, leading to consolidation of a number of information systems by the Pentagon. Federal government IS expenditures for 1992 are expected to be $2.0 billion, growing to $3.7 billion in 1997, for a compound annual growth rate of 13%—higher than the 10% CAGR predicted last year.

Interest in outsourcing continues to increase in the commercial market, resulting in a compound annual growth of 19% for the period from 1992 to 1997—a slight increase over the 18% forecast last year by INPUT. Outsourcing operations expenditures by commercial enterprises in 1992 were $9.6 billion, growing to $22.8 billion in 1997.

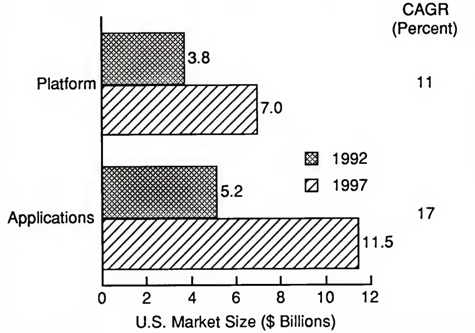
D

Systems Operations Components Forecast, 1992-1997

Exhibit III-4 illustrates how the market is split between the two types of systems operations and how this spread will accelerate over the forecast period. In platform operations, the vendor is responsible for managing and operating the client's computer and/or communications systems. In applications operations, the vendor operates and manages the computer and/or communications operations and is also responsible for maintaining, or maintaining and developing, the client's applications software.

EXHIBIT III-4

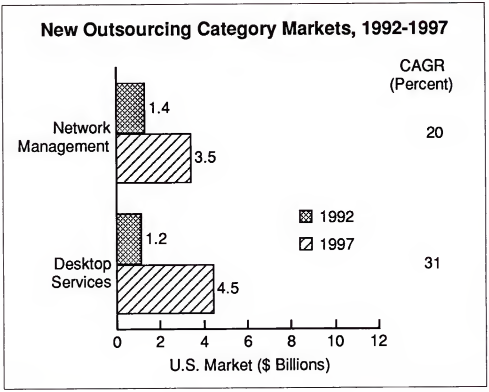
Systems Operations Type Forecasts, 1992-1997



INPUT projects that applications systems operations, already the dominant submode, will grow at a compound annual growth rate of 17% through the period. Expenditures will grow from $5.2 billion in 1992 to $11.5 billion in 1997. Platform operations expenditures will grow from $3.8 billion to $7.0 billion in the same period, at a CAGR of 11%. The difference reflects the client community's greater acceptance of the concept of total systems management by vendors.

As shown in Exhibit III-5, INPUT estimates that network management represented a market of $1.4 billion in 1992 and that it will grow at a compound annual growth rate of 20% to reach a value to $3.5 billion in 1997. Desktop services is expected to grow even faster, going from a market size of $1.2 billion in 1992 to $4.5 billion by 1997. This represents a CAGR of 31%, significantly higher than the other three modes of outsourcing being measured this year. The impact of the downsizing phenomenon in organizations and the recent proliferation of PCs as a user tool for productivity are feeding this rapid market expansion.

EXHIBIT III-5



E

Vendor Competition, 1992

EDS continues to maintain its market share, even increasing its lead a bit, because of a great number of contracts rather than because of any single major one, except for Bethlehem Steel.

CSC also kept its second place position, thought ISSC did move closer. Both companies are demonstrating strengths in several vertical industries on which they are capitalizing.

Digital moved up in the rankings this year, moving from sixth place in 1991 to fourth place in the outsourcing market in 1992. Their services emphasis is beginning to show results. Systematics had a good year to keep it in the top five revenue producers among the outsourcing vendors.

As evident by these market shares, there are numerous participants in the outsourcing market, many with a very small percentage of the total revenue. That has always been the pattern with this market and will continue unless there are major acquisitions in the offing.

Exhibit III-6 lists the leading outsourcing vendors in 1992 based on reported annual revenues.

EXHIBIT III-6

Leading Outsourcing Vendors

Vendor	1992 U.S.* Revenues ($ M)	1992 Market Share (Percent)
EDS	1,600	13
CSC	580	5
IBM/ISSC	460	4
Digital	240	2
Systematics	220	2

F

Client Selection Process

The vendor and the client must develop a clear understanding of each other's capabilities and commitments before a real outsourcing contract can be entered into. It is a grueling task for both the vendor's marketing force and the prospect's evaluators.

Fifty percent of the prospects interviewed by INPUT prepared a formal solicitation document. The prospect's purpose is to provide vendors with common data upon which to base their proposals.

The other firms simply assembled their requirement data and notified known vendors or current suppliers that they were looking for an outsourcing management arrangement.

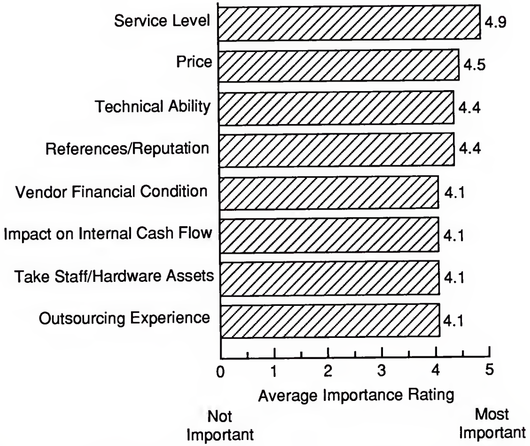
The selection process is essentially a screening process. The first set of responding vendors is narrowed down to a smaller, more viable short list through a preliminary evaluation. This usually involves a comparison of some common criteria. The short list of vendors is then reviewed more thoroughly and discussions are typically begun with several vendors.

Certain vendor capabilities repeatedly appeared on selection criteria. Exhibit III-7 presents ratings for the major evaluation criteria developed as part of INPUT's ongoing research.

A more detailed examination of users' selection procedures confirms that price is not the determining factor in vendor selection, as shown in Exhibit III-7. INPUT asked users to rate a wide range of vendor evaluation criteria on a 1 to 5 scale. The proposed service level—not priced—received the highest average rating, 4.9. Price was rated 4.5. Over half of the criteria received ratings above 4.0.

EXHIBIT III-7

Top Client Selection Criteria



The most highly rated vendor characteristic, service level, was an indication that prospects are more concerned about the quality of service they receive from vendors than the price they pay. They are willing to pay a premium to get superior service levels.

The next three criteria, technical ability, vendor reputation, and vendor financial condition, as well as another criterion also rated at 4.1, outsourcing experience, reflect on the vendor's ability to perform. The prospect knows the relationship with the vendor must be a solid one to succeed, one that will extend for several years and one that will depend a lot on the abilities of the vendor. The prospect therefore wants to deal with a stable, proven vendor.

The other two items rated above 4.0, impact on cash flow and taking on of hardware/staff assets, reflect other financial concerns that drive prospects to choose outsourcing.

Several other selection criteria were less frequently mentioned by respondents to INPUT's user survey. A more thorough discussion of these less important items can be found in INPUT's report, *Methods of Approaching IS Outsourcing*.

G

Recommendations

The set of recommendations presented in Exhibit III-8 is derived from the analysis of the market this study represents.

These recommendations reflect the conditions as they exist in the present marketplace. They incorporate the issues raised by users and the strategies successfully demonstrated by vendors.

The key recommendations to be made for the pre-sales cycle are

- Select prospects carefully. Capitalize on existing knowledge or prior successful relationships in the target industry.
- Capitalize on long-term, pre-existing relationships with the prospect, which feels that such a relationship is, indeed, the best choice for it.
- Establish strong alliances with partners that can complement industry expertise and provide additional cost-effective resources.
- Assume some financial risk, usually a capital investment or assumption of some of the client's assets.
- Develop contractual terms that protect against undue risk and define expectation for both parties.

EXHIBIT III-8

Recommendations

- Pre-sales
  - Establish strong alliances
  - Assume risk carefully
  - Define expectations in contract
- Post-sales
  - Communicate constantly
  - Develop partnership relationship
  - Participate in client strategy development

The key factors of the post-sales period need to be considered from the onset of the sales cycle also. They are

- Communicate within the client's organization with both user and senior management, on a daily basis if necessary.

- Become part of the client's organization, providing a better service level than that provided by the internal staff.

- Use the contract to define initial operating parameters for both parties.

- The formal contract will need to be supplemented by both parties agreeing that the good of the partnership will often require actions not specifically written in the contract.

- The vendor and client must have joint strategy sessions at which important issues can be discussed and key information shared.

Vendors who successfully master the development of partnerships will be the major outsourcing vendors that benefit most from the expanding market. The relationship will need to be adjusted as IT technology (re-engineering, downsizing, client/server) introduces new options for the client and/or changing business conditions alter the operating requirements.

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IV

Systems Integration Market Analysis

A

Major Buyer Issues

The current sluggish business and economic environment is still the primary issue facing potential buyers of system integration services. In this condition of uncertainty, some buyers are delaying the start of large SI programs, while others are looking to a modular approach with a faster payback. The slow economy has increased the competitive pressure for most companies. These pressures are forcing management to focus on their core businesses. Nonstrategic functions like systems integration and systems operations are being outsourced. Many companies are turning to technology to gain a competitive advantage by reducing costs, providing superior service, expediting product development, and improving quality and productivity. These new solutions are becoming increasingly complex as they seek to change traditional business processes and serve new organizational structures requiring around-the-clock and around-the-world operations. Exhibit IV-1 synopsizes the major 1992 buyer issues.

EXHIBIT IV-1

Major Buyer Issues—1992

- The economy
- Core business focus
- Competitive demands
- Increasingly complex solutions
- New technology applications
- Process re-engineering

As INPUT studies information systems budgets, it has become apparent that an increasing percentage of information systems expenditures is no longer controlled by internal information systems organizations. User organizations are, in many cases, becoming the buyers of solutions, and they control the budgets for them. The decision to use an outside vendor to provide system integration services has become more of a business issue and less of an information technology issue.

Many of the solutions that users seek include new technologies such as artificial intelligence, image processing, and a variety of advanced telecommunications alternatives such as LANs, WANs, and MANs. Systems integrators with good track records provide an attractive alternative to internal information systems organizations that often lack adequate resources and skills to meet new user requirements. Some internal organizations also lack applications knowledge and experience in new technologies to develop solutions in-house.

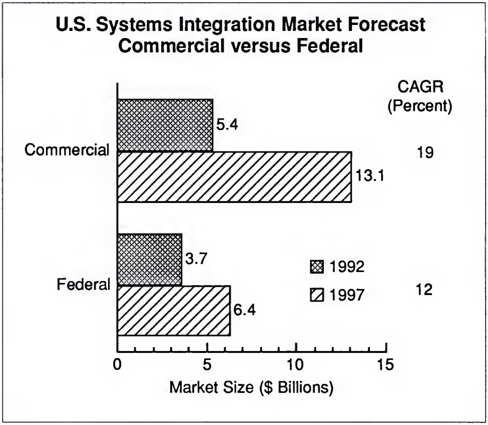
B

Market Size and Forecast, 1992-1997

Although industry will continue to invest in new capital equipment, INPUT believes that the recession just passed will slow down the number of new commercial SI (CSI) programs that are started in 1993. The slow economy, increased transfer payments, lower tax revenue, and budget deficits are also having a negative impact on the growth of federal SI (FSI) programs.

Actions by the industry to solve the business problems it faces increased expenditures for commercial systems integration to $4.6 billion in 1991, despite predictions of a lower 1991 GDP. INPUT sees that a still cautious industry is selectively investing in new and expanded information systems in the near term, and that total expenditures for vendor-provided CSI solutions will reach $13.1 billion in 1997. This sum represents a CAGR of 19%, the same as predicted last year. Narrowing margins and reluctance to invest in new information systems solutions, and less frequent use of outside vendors to implement them, are expected to continue to hinder demand for systems integration. Exhibit IV-2 provides the forecast for both the commercial and federal markets.

EXHIBIT IV-2



When considering the overall commercial systems integration market, several points are of particular note:

- The overall economic lethargy and financial difficulties in specific industries (manufacturing and banking/finance in particular) have contributed to slow growth of the systems integration market over the past few years.

- The length of programs has become shorter. Organizations indicate a need for short-term payback from new systems. This has contributed to the definition of programs that are smaller, requiring less time to implement, and resulting in shorter term paybacks.

- With smaller program sizes, program values have also declined. Organizations indicate that they are spending half as much on new programs as they were two to three years ago. The reduced spending reflects both keen competition for capital and the need for shorter term investment benefits.

- Vendors themselves are also helping clients reduce the expenditures for SI. That hardware prices will continue to decline is axiomatic. Less apparent are the dramatic improvements being made in vendor productivity because of CASE (computer-aided software engineering) tools, program management tools, reusable software, business process re-engineering, and improving network and application software. Competition among vendors is also helping to control client expenditures. These cost avoidances are being somewhat offset by increasingly complex systems requiring the latest technological improvements and substantially higher networking content.

The net result of shifts in project size, project value, and the impact of technological and economic pressures has been to bring the forecast for the systems integration market more in line with the slower overall growth of the information services industry, at least in the short term.

There are several important points to note about the five-year forecast for the commercial and federal systems integration markets:

- The commercial market is expected to experience a somewhat dampened growth rate (12% to 13%) over the next two, years. Although interest rates have dropped, availability of capital remains limited, and there are numerous conflicting priorities.

- The commercial market is expected to rebound in the latter years of the forecast period, assuming that the economy picks up. Organizations note that there are numerous committed projects that need to be funded.

- Although the federal systems integration market is affected by the economy to some extent, the major shifts in government emphasis is having a greater impact. The demise of the USSR and critical domestic problems have combined to force a shift in spending and therefore in programmatic emphasis. In the near term, the result is a slowing of growth of FSI opportunities, but in the mid-to-long term, more new SI programs will be initiated.

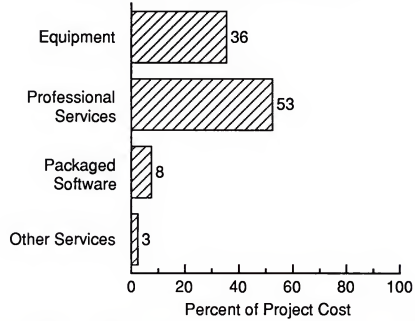
C

SI Project Composition

SI expenditures can be broken into four basic components: computing and telecommunications equipment, professional services, systems and applications software, and other ancillary expenditures. The distribution of these expenditures in 1992 is shown in Exhibit IV-3.

EXHIBIT IV-3

CSI Project Composition—1992



Earlier forecasts projected that expenditures for equipment would decline as a percent of the total, and they have, but the decline appears to have bottomed out. Analysis of hardware expenditures indicates that price declines are offset by increases in the acquisition of client/server equipment and networks that integrate the process of delivering information throughout the organization.

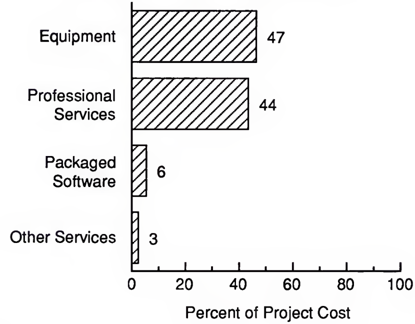
Organizations in nearly all industries note a need to better understand the relationship between integrated systems and integrated business operations. This need results in greater expenditures for consulting and design/integration.

All of the major SI vendors have recognized the need to include business process re-engineering or business process change analysis as part of their SI engagement offering. This service has become so important that it is now often separated from the SI program and treated as a consulting engagement.

As shown in Exhibit IV-4, FSI has a project composition more heavily weighted toward equipment. This is a result of federal programs usually involving large amounts of data, higher geographical dispersion, and the most advanced technologies. Since government procurements involve very detailed specifications, vendors are able to concisely structure the professional services component of their bids. Professional service labor rates are very competitive in the government market.

EXHIBIT IV-4

FSI Project Composition—1992



D

Vendor Goals and Objectives

Most of the vendor goals and objectives identified in Exhibit IV-5 are market driven. Systems integration is a very high-level distribution channel for the complete range of information and telecommunications products and services. It provides or limits product access to the largest users in U.S. industry. Vendors who do not have access to this channel fear that they will lose market share and control of their existing customers.

The information industry has evolved from a product to a services orientation and from an environment where the customer was totally responsible for implementation to one where vendors are assuming responsibility. Customers are seeking one-stop shopping and vendors are striving to add additional products and services to become full-service providers. User organizations are clearly looking outside for a single point of responsibility.

EXHIBIT IV-5

Vendor Goals and Objectives

- Long-term account relationship
- Decentralized services
- Full-service image and offerings
- Industry knowledge and skills
- Market coverage

Product and service providers are adding front-end consulting and back-end operations management. Some are seeking to achieve these goals by building from within or by making acquisitions. Others look to alliances to provide this full-service image.

For the most part these services need to be located physically close to the customer. Many vendors have abandoned centralized SI organizations, and moved SI resources into their field organizations. SI engagements are becoming oriented to the clients' site structure rather than the vendor's organization.

Vendors recognize the importance of understanding the client's business, particularly in an environment where long-term relationships are important. To achieve this goal, vendors are making significant investments in industry architectures and solutions, hiring industry experts, and establishing alliances with consulting firms or professional services firms that already have industry expertise.

The larger vendors that already have product industry coverage have improved their SI vertical industry coverage to protect their existing customer relationships. Smaller vendors are honing niche skills and gaining market coverage through alliances with larger vendors.

Vendors are building and marketing proprietary products and methodologies. Solid methodologies for business analysis, requirements analysis, systems design, program management, change management, and integration and implementation improve the odds for program success and reduce the risk of catastrophic failure. These methodologies also build a record of success that can be used for reference selling. Framework products continue to be developed that can be tailored to satisfy a client's specific business needs.

Finally, a growing number of secondary vendors are seeking participation in the market. Many have products that were previously sold as standalone systems but are now candidates for integration into larger solutions. These products include basic computing equipment as well as robots, warehouse storage and retrieval systems, on-board computers, and a variety of communications products. Other vendors seeking SI participation include companies that have developed solutions internally and want to market these skills to others in their industry.

E

Vendor Competition, 1992

Exhibit IV-6 illustrates that the same five organizations who were the systems integration market leaders in 1991 are still there in 1992. There is only one shift in ranking. EDS has moved ahead of Andersen Consulting this year, moving to second place from third last year. Digital and CSC held their same respective positions as last year.

EXHIBIT IV-6

Leading U.S. Systems Integration Vendors

Vendor	U.S Revenue ($ Millions)	Percent
IBM	1,900	21
EDS	820 (2)	9
Digital	800	8
Andersen Consulting	730 (1)	8
Computer Sciences Corp.	550	7

1. Includes INPUT's estimate of equipment content
2. Non-GM business only

IBM gained some market share, according to data available to INPUT. The regional technical centers exhibited more and more independence and aggressiveness in and out of their geographic territories during 1992, gaining many projects. At the end of 1992, it was announced that more of the commercial systems integration responsibility would be shifted to ISSC. This should represent an even more aggressive stance in the market for IBM. The federal systems integration activities of the IBM corporation continue to be managed by IBM's Federal Systems Division.

EDS's continued strong presence in the federal market, as well as its growing role in the state and local government marketplace, contributed to moving it up to second position overall. EDS seems also to have developed strong capabilities in the client/server area, one in which demand is increasing rapidly.

Andersen Consulting continues as a strong player in the systems integration market, particularly in the client/server area. Andersen's business strategy continues to be to take a long-term perspective of its clients' business needs. Thus, they will start with business consulting, move to process re-engineering, if that is appropriate, then include change management in the implementation of their delivered systems .

Andersen's revenue share is always hard to estimate because INPUT needs to impute additional equipment expenditures to their reported revenue, to put them on a par with the other SI vendors who include pass through equipment revenues in their reported figures.

Digital continues to capitalize on its strong foothold in the manufacturing vertical industries to maintain its systems integration market share. It also is a leader in the network integration segment of this market. Digital's continued focus on the services business, recent senior staff appointments and reorganizations to better focus on the services area will make them a strong competitor.

CSC continues to benefit from its strong federal position but its acquisition some time ago of CSC Partners and its increased focus on commercial markets may well help them move higher in the SI vendor rankings in the next year or so.

F

Recommendations

Systems integration is one of the services that clients seek as they continue to use a broad range of information services delivery mode alternatives. Clients want services that range from front-end consulting, through SI, to outsourcing of systems operations. INPUT believes that commercial businesses and public sector organizations will continue to choose vendors that can offer the full range of these services, even if the specific program does not involve all of those vendor capabilities. Equally important is the notion that once a vendor is selected to do the front-end consulting, it is in a favored position to win the systems integration and even systems operations contracts. Vendors should strive to present this full-service image, as indicated in Exhibit IV-7.

EXHIBIT IV-7

Recommendations

- Present full-service image
- Leverage unique capabilities and products
- Establish strategic partnerships (alliances)
- Manage risk
- Develop industry-focused market strategies

Vendors should assess their current skills and capabilities and build strategies that use them effectively. SI includes too much risk to attempt to provide broad industry coverage if the vendor does not have the necessary skills or experience.

SI is a very complex business. Few vendors have all of the products, skills, and capabilities to satisfy the complete requirements of systems integration programs. Teaming, program partners, and alliances are common approaches used to meet a client's integration requirements. Vendors must establish a set of relationships and alliances for long-term success in this market. Partners should be selected carefully and the resulting alliances managed thoughtfully.

Systems integration is a high-risk business, with great potential for success and failure. Some clients are aware of the gamble and will give higher rewards to the vendor that can demonstrate a good track record of risk management and containment. One reason that clients use SI vendors for complex programs is to have the vendor assume the risk of producing a complete, successful system. The vendor must introduce risk management into every phase of the program.

Success and customer acceptance is based on confidence in the vendor's track record in providing solutions in the customer's industry. Therefore, to be successful, vendors must develop focused strategies for each selected vertical market to be addressed.

V

Professional Services Market Analysis

A

Market Trends and User Issues

The professional services market began to pick up in 1992 as indicated in the overview shown in Exhibit V-1.

EXHIBIT V-1

Professional Services Market Overview ($ Billions)

1991 Outlook		1992 Outlook
1991 Forecast - 17.8	versus	1991 Actual - 17.8
1992 Forecast - 19.4	versus	1992 Actual - 19.5
1991-1996 Forecast Growth Rate - 9% (CAGR)	versus	1992-1997 Actual Growth Rate - 10% (CAGR)

- This overview indicates that the forecast of the 1991 market was on target with actual results, and that the 1992 actual was above the forecast due to a recent increase in sales revenues.

- The five-year forecast of professional services business was raised from the estimate made in 1991, based on 1992 results.

- The increase of 1% in the forecast growth rate raises the five-year growth rate to 10% which would translate into an additional $1 billion of expenditures in this market in 1997.

One notable aspect of the current market is the increasing use of client/server technology, which is reflected in the distribution of user expenditures for professional services by technology platform shown in Exhibit V-2. This distribution will shift so that workstation-client/server platforms will be responsible for the major share (75%) of expenditures by 1997.

EXHIBIT V-2

Percentage of Professional Services Expenditures Related to Hardware Platforms, 1992

Platform	Percentage of Expenditures
Mainframe and super	52
Client/server, workstation/PC	25
Midrange—including IBM AS/400 and most DEC equipment	21
Standalone open systems	2
Total	100

- This indicates a considerable decrease in expenditures that are mainframe related during the last few years, as well as a noticeable increase for workstation- and client/server-related professional services work, particularly work involved in supporting downsized application systems.

- This increase is directly related to the increasing interest of users in becoming more involved in developing and operating the systems handling their business functions, a major user issue as noted in Exhibit V-3. The migration of systems responsibility to users will encourage the outsourcing of application support functions to professional services firms to save central IS (information services) expenditures.

EXHIBIT V-3

User Issues

Issues	Average Importance of Issue Reported by Respondents*
Improvement of product/service quality	4.2
Improvement of sales effectivness	4.1
Improved connectivity of functions	4.0
User systems responsibility	3.8
Restructuring business	3.7
Reducing/outsourcing functions	3.2

*Note: Where 5 = high and 1 = low

The major issue users are concerned with is gaining revenues through improvements in product and customer service quality and by increasing sales effectiveness. Means of improving business or reducing costs through restructuring and outsourcing functions also rank as important user issues.

- These issues appear to be most intense in manufacturing firms such as chemical and customer goods firms in the Middle Atlantic States and discrete manufacturers in the Middle West.
- Respondents note that these issues are also felt in telecommunications, state and local government, and financial organizations.

B

Driving Forces

The need for technical skills and the industry/application knowledge necessary to achieve user objectives is a driving force in the market at present, as indicated in Exhibit V-4.

EXHIBIT V-4

Professional Services Market Driving Forces

- Need for technical skills/industry knowledge
- Need for improved business performance
- Use of client/server technology
- User role in planning/using systems
- Vendor bidding/pricing tactics
- Budget pressures
- Use of consulting services
- Growing interest in application support

In order by average importance to respondents.

- This is partially due to the need to modify application systems to improve quality and expand sales, as noted above.
- It has also come about as a result of the growing role of users in planning and decision making and their activities related to implementing client/server systems and downsized application systems.

Both the user role in systems activities and new hardware technology are major driving forces.

User activities which may have been conducted with the aid of small vendors and computer stores have reached points of development (or problems) where user or user management has felt it necessary to bring in vendors with recognized capabilities to help new technology meet objectives. The customer services and sales offices of computer manufacturers have been major points of contact for this aid.

- IBM has benefited from this burgeoning use of client/server technology and LANs.
- Andersen Consulting and EDS have taken strong steps including specialized education and training to obtain shares of this business.
- Other computer manufacturers and some RBOCs (Regional Bell Operating Companies) have also received additional business as a result of increased user responsibilities and the use of client/server technology and downsized application systems.

Other driving forces that are having an impact in the marketplace are pressures on user budgets and pricing sensitivity—two related forces. These forces are felt most by professional services vendors engaged primarily in contract services work.

- There is a wide range of prices and discount alternatives (Exhibit V-5) offered by firms.
- There are also foreign firms with offices in the U.S. (such as Tata and temporary agency firms) that offer foreign sources of skill and laid-off domestic personnel that will work for fees below current market rates. It is estimated that work performed by foreign personnel in the U.S. who are not citizens or work performed at offshore locations and sold in the U.S. amounts to over $400 million annually.

The largest firms in the industry, who also grow at a faster rate, on the average, than the layer of firms just below them, tend to bid "jobs" rather than just contract services. They may take on contract assignments from a client or in relation to the accomplishment of a job, but they are not usually found among the vendors competing to supply a limited number of personnel for a small contract.

The larger firms will also use the agency type of vendors to supply personnel for certain jobs. Both IBM and Coopers & Lybrand have used these sources to locate technical expertise at reasonable prices to meet user cost constraints.

The use of consulting services is also a driving force that should be examined.

- Consulting provides a higher fee and profit margin as well as an opportunity to gain additional work in certain circumstances. Some Big Six firms use it as the first step of a project.
- However, consulting may not lead to projects in some circumstances since clients will want to guarantee the disinterested analysis and recommendation of a consultant by not using the same firm for implementation.
- Nevertheless, McKinsey and Booz-Allen have both recently acted to gain additional information services work as the result of consulting, and IBM, Digital Equipment Corporation (DEC), and CSC have all strengthened their ability to supply consulting services.

EXHIBIT V-5

Circumstances Warranting Discounts and Range of Discounts Offered

Discounts Offered for	Percentage of PS Firms Offering...	Range of Discounts (Percent)
Geographic location	21	10 to 20
Use of retainers	14	5 to 50
Billing volumes	34	8 to 30
Total project responsibility	24	10 to 20
Length of contract	38	10 to 50
Specific customers	28	10 to 30
Repeat business	17	10 to 15
Specific markets	16	10 to 40
Specific PS grades	17	10 to 40
Government work	21	(not stated)

Source: INPUT, 1992

There is also a trend toward greater use of professional services to support application maintenance, enhancement, and management that will be a significant driving force in the market.

- Although the trend is not significant as yet, larger firms are performing this type of work in conjunction with systems operations services for clients.

- Firms are also starting to sell these services as a means of generating continuing business. Some of the arrangements for such work may not be visible in the marketplace, according to vendors and users since vendors are still developing these services and not advertising them strongly.

C

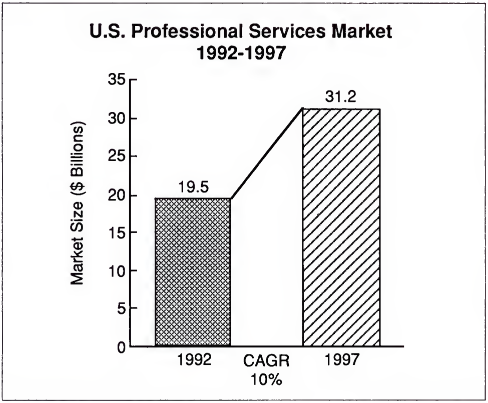
Market Size and Forecast, 1992-1997

Exhibit V-6 indicates the growth of user expenditures for professional services over the planning period.

- Starting at a level of $17.8 billion in 1991, expenditures reached $31.2 billion in 1997. Growth will occur at a CAGR of 10% between 1992 and 1997.

- The total spent for professional services in 1997 will make it the third largest market for information services behind the markets for applications and systems software products.

EXHIBIT V-6



D

Vendor Competition

The leading seven vendors in professional services revenues are listed in Exhibit V-7.

EXHIBIT V-7

Leading U.S. Professional Services Vendors, 1992

Rank	Vendor	Professional Services Revenues ($ Millions)
1	IBM	645
2	CSC	625
3	EDS	560
4	Andersen Consulting	370
5	Logicon	275
6	DEC	320
7	PRC	240

- Five of the seven vendors will stay at the top if systems integration (SI) revenues are combined with professional services revenues.

- The fifth largest vendor, Logicon, which is a specialized vendor serving the government market, will move down about ten places in overall ranking if SI revenues are counted.

Among these large vendors of professional services, the four that are least dependent on the uncertain federal government market are IBM, EDS, Andersen, and DEC. These vendors, particularly IBM and DEC, also offer a wide array of information services and sell to most major markets.

The largest vendors are also dominant in marketplace subsegments.

- All the vendors listed in Exhibit V-7 are among the leading vendors of software development, the largest submode of professional services. IBM, CSC, EDS, and Andersen are the largest suppliers of this resource.

- The leaders in consulting services, another submode of professional services, include the top three vendors listed plus McKinsey and Booz-Allen.

- The four leading vendors are also among the leading vendors in revenues for education and training services, the third largest submode of professional services. National Education Training Group (NETG), a specialist in education and training, is also a leader in this submode.

All seven vendors are also active in systems operations services. EDS and IBM are the largest suppliers of that service mode, and the others rank in the top ten vendors.

- Two are computer manufacturers (IBM and DEC).

- One, Andersen Consulting, is part of a public accounting firm, one of the Big Six.

- EDS, CSC, and Logicon had their genesis in the information services industry. EDS has specialized more in processing and systems operations services than the other two, but they have a greater percentage of their business with the federal government. Logicon is most dedicated to that market.

One interesting similarity among all but one of the top vendors (Logicon) is that they all have strengthened their high-level consulting services through hiring and restructuring to differentiate their services from low-cost competitors.

E

Conclusions and Recommendations

1. Conclusions

The conclusions of this study (listed in Exhibit V-8) stress the fact that an upturn is taking place in the professional services market, but that it is uneven and requires careful analysis by vendors in relation to their objectives.

- The markets where increases in user expenditures are taking place most strongly include discrete manufacturing, telecommunications, and state and local government, as shown in Exhibit VI-5. In discrete manufacturing, upward pressure was strongly felt during most of 1992.

- Increases appear to be uneven, favoring certain regions such as the Midwest and some mid-Atlantic States. Most of New England and the Far West, as well as much of New York, is not faring as well as those geographies, according to respondents.

- The need for high levels of technical expertise is even more of a factor now than it has been in the past, due to the increasing amount of user presence in systems activity. *Both* user and IS groups seeking aid with current application systems and networks as well as with client/server systems are in contact with professional services vendors.

- Some CIOs contacted during this study are concerned about the increasing role of users in initiating systems projects and selecting vendors who are technically able and knowledgeable in industry applications.

EXHIBIT V-8

Conclusions and Recommendations

- Conclusions
  - An upturn started in 1992
  - Effects of upturn are uneven
  - Increased need for technical expertise
  - Increased end user role
  - Strong impact from client/server technology and downsizing
  - Budget pressures on vendor pricing
  - Interest in application management/maintenance
- Recommendations
  - Analyze marketplace more intently
  - Gain more knowledge of pricing, discounting
  - Review opportunities in other service modes
  - Develop sources for skills in short supply

The sensitivity to pricing that is encountered is indicative of budget and financial pressures in the market.

- Users report that pricing is an important consideration, even if it is overweighed by other factors, including the availability of technical skills and industry knowledge. Pricing has more of an impact on the supply of temporary systems personnel where agencies offer foreign and laid-off technical people for jobs.

- Large vendors report that they focus on projects or jobs rather than on the placement of people in order to avoid competition with low-priced suppliers. They also make an effort to stay aware of competitive pricing and will use techniques such as performing work offshore or obtaining technical people from selected agency vendors to meet client needs.

There is growing interest in application management and support, although it is not a significant market factor at this time. However, large and small vendors, as well as some corporations, mention interest and note activity in this type of outsourcing.

2. Recommendations

This is a time for vendors offering professional services to spend more time in analyzing the marketplace.

- The use of pricing and discounting in the professional services market and their relation to other factors affecting client "buy" decisions should be explored and considered in key sales situations.

- The markets and regions where sales are occurring and the capabilities (including consulting services) which are in demand should be reviewed. Vendors should take advantage of their capabilities in situations where they are specifically of value rather than seek business in weak, highly competitive niches. Several vendors report that they are taking such initiatives.

Business in other service modes should also be considered. The most successful professional services firms have SI, software products, systems operations, or other information services business and serve multiple markets including one or more of the largest, fastest growing markets.

Since certain technical skills are in short supply, vendors should develop sources for obtaining them. IBM and Coopers & Lybrand, as well as other larger vendors, use small agency vendors to obtain critical skills.

More knowledge of competitors should also be gained in order to emulate successes as well as to react to their prices or strategies.

An expansion of consulting, particularly in information systems strategic planning, systems analysis, and network planning, services should be considered since these services are growing in use and involve higher fees and profit margins and may lead to other professional services business. This expansion will provide opportunities in many situations even though some prospects, particularly large financial institutions, may select different vendors for consulting and implementation.

VI

Applications Software Products and Turnkey Systems Market Analysis

The application solutions market is defined by INPUT as two delivery modes: applications software products and turnkey systems.

This chapter presents overall growth projections for applications software products and turnkey systems, and draws conclusions about this fast-moving portion of the information services industry.

A

User Issues

User issues are outlined in Exhibit VI-1 and briefly described below.

EXHIBIT VI-1

User Issues

- Cost reduction
- Downsizing
- Interoperability
- Technological confusion

Cost Reduction: As a result of the slowdown in the economy, cost reduction has become a major concern to buyers of information systems. This was the issue mentioned most frequently by executives responding to INPUT's survey on application solutions. Many of the respondents indicated that IS expenditures have been constant in the past two years or have increased only slightly. The two industries that spend the most for application solutions—banking and finance and manufacturing—have been among the hardest hit by the recession.

Application solutions have been less affected by budget reductions than other delivery modes. Companies are looking at software as a way to increase productivity and perform sophisticated analysis to achieve a competitive advantage. Since they are seeking the lowest cost for these solutions, buyers are more interested in purchasing software separately, while shopping around for the best deal on hardware. Therefore, expenditures on applications software are expected to grow at a healthier rate than expenditures for turnkey systems.

Downsizing: While reliance on mainframe and midrange systems persists, users are embracing the concept of downsizing. The need to reduce costs and gain greater access to corporate data for individual users is driving this migration pattern. The great majority of executives INPUT interviewed for this report indicated that they are either currently using, planning or considering adoption of a client/server architecture.

Interoperability: As companies move toward implementing more applications on the PC LAN level and making data more accessible, the importance of integrating disparate systems is heightened. Companies wish to leverage their existing technology investments, yet often these systems were purchased by different user and/or IS organizations without regard to integration. Companies want to make sure that the decisions they make regarding their use of technology will facilitate the communication of those systems. Users are looking for solutions that can run on multiple platforms and are not vendor-specific.

Technological Confusion: There is still a great deal of confusion on the part of buyers regarding the rapid development of technology. Even within the IS organization, executives report that one of their greatest challenges is knowing how to balance investing in new technologies that will support the company's business goals against cost and selecting the "wrong" technology.

Internal applications development efforts persist in spite of the widescale availability of packaged applications software products. Although ready-made products are plentiful, users continue to indicate that much software is still not specific enough for their needs.

B

Driving Forces

INPUT has identified four driving forces supporting growth in the applications software products market. These are provided in Exhibit VI-2 and discussed below. Four issues impacting the turnkey systems/VARs market are also described in Exhibit VI-3 and discussed below.

EXHIBIT VI-2

Driving Forces
Applications Software

- Technology
- Decreased internal development
- Upgrades/licensing
- Economy

EXHIBIT VI-3

Driving Forces
Turnkey Systems

- Solutions selling
- Specialized needs
- New products
- Hardware manufacturer reliance on VARs

Technology: The most significant factor driving applications software expenditures relates to the changing information systems model. As companies embrace downsizing, implement enterprise computing and make use of GUIs, the need for applications to support these technologies is critical. Applications that formerly were mainframe host-based will now be acquired or rewritten for PC LAN or midrange systems. Client/server applications are still in the development stage for many vendors. As new operating systems, such as Windows NT, are introduced the market for applications supporting them will increase.

A pent-up demand for new products and solutions will drive growth. Customers are asking for new solutions with better features and functionality.

Decreased Internal Development: Expenditures for applications software will also increase as companies become less and less able or willing to develop systems in house. As IS budgets and staffing shrink, and users become more involved in purchases, packaged solutions will increasingly become more attractive.

Upgrades/Licensing: While the market for new application solutions is continuing to increase, an important source of revenue will continue to be upgrades and ongoing licensing and maintenance. As certain segments of the market mature, potential revenue from upgrades can be greater than for new products.

Economy: The state of the economy has led to budget reductions, but it has also resulted in the purchase of applications software to be used as a strategic tool to achieve competitive advantage.

Solutions Selling: The trend toward solutions selling should be advantageous to VARs and turnkey vendors. These providers are generally knowledgeable in an industry-specific or cross-industry sector.

Specialized Needs: Opportunities exist for VARs and turnkey vendors in addressing very specialized applications needs. They will continue to provide more service content to their offerings as the demand for increasingly sophisticated software creates a need for services in the form of customization, training and support. More systems integration and consulting work will also be part of VAR/turnkey vendors' service offerings in response to the need to link disparate, enterprise-wide systems.

New Products: The proliferation of new technologies will result in an infusion of new applications software products to fuel the VAR channel. Both software and hardware vendors are launching aggressive VAR recruitment efforts. Faced with the complexities and time involved in engineering/re-engineering their own software products, turnkey vendors and VARs are likely to become more willing conduits for other vendors' applications software products rather than developing their own. They will add the necessary customization.

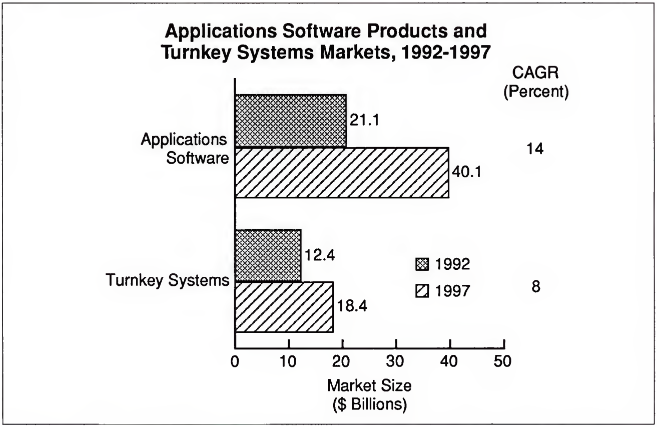
Hardware Manufacturers' Reliance on VARs: Hardware vendors are launching new programs not only to gain back the VARs' allegiance, but also—importantly—to assist VARs in selling their new products. For example, Hewlett-Packard's Enterprise Computing Solutions program assists VARs and integrators in migrating mainframe customers to client/server computing schemes designed around its products and services.

C

Market Size and Forecasts, 1992-1997

User expenditures for applications software products are forecast to grow at 14% compounded annually over the next five years, reaching $40 billion by 1997, as shown in Exhibit VI-4. The annual growth rate will gradually increase from 11% in 1992 to 14% by 1997 as new applications software products are introduced.

EXHIBIT VI-4



In some segments, 1992 expenditures were less than projected due to the lingering effects of the recession. In most cases, as the recovery gains momentum, expenditures are expected to grow close to previously forecasted levels. Exceptions are generally in the more mature, cross-industry segments.

User expenditures on turnkey systems are somewhat lower. The turnkey systems/VAR market reached $12 billion in 1992 and is forecast to reach $18 billion by 1997. The CAGR will be 8% for the 1992-1997 period. With standardization underway for both software and hardware, turnkey vendors will no longer be able to capitalize on the added value of their proprietary systems. In addition, a weak economy, continuing declines in hardware margins, and competition from alternative channels such as systems integrators will keep growth of user expenditures on turnkey systems at a modest rate over the next five years.

In either case, whether for applications software products or a turnkey system, sales decisions are taking longer as users evaluate their options. Due to the plethora of new hardware platforms, operating systems, client/server versions and software frameworks available, user confusion will be an inhibiting factor.

Even so, customers are going ahead with selected applications software product and system purchases and are using the services of systems integrators to develop customized client/server and UNIX application solutions.

D

Vendor Competition

While the majority of software solutions vendors are small, with revenues of less than $1.5 million, in the past few years some industry giants have emerged. This has changed the market considerably. Market leaders such as Microsoft have the resources to make strategic acquisitions to strengthen their market position. They can allocate large budgets to advertising, conduct targeted marketing campaigns and offer competitive pricing packages.

Vendors are now offering an array of software as part of product suites. Some of the popular applications are being bundled with hardware sales much like operating systems have been. For Microsoft, bundling its operating system and applications software along with hardware has the potential to increase sales exponentially at little or no sales cost.

The smaller vendors are left to fill niche markets. Yet they too must consider strategic alliances to be able to compete with some of the larger providers.

A list of leading applications software products vendors and turnkey systems vendors is provided in Exhibit VI-5.

Lotus, Microsoft, WordPerfect and Borland vie for PC-based applications software product market share; Dun & Bradstreet and Computer Associates International provide mainframe-based software. D&B Software is transferring its entire series of product lines to a common client/server base.

The largest turnkey systems vendors play a strong role in one or more vertical sectors and have, for the most part, been in existence for many years. One example is Reynolds and Reynolds, which has long had a leading position in the automotive dealership market. Note that computer systems vendors that also sell software bundled with their general-purpose hardware are not considered turnkey systems vendors and are therefore not listed.

EXHIBIT VI-5

Leading U.S. Vendors

Vendor	Market Share (Percent)	1992 U.S. Revenues ($ Millions)
Applications Software Products		
Microsoft	4	925
Computer Associates International	4	800
Lotus	2	450
WordPerfect	2	380
Dun & Bradstreet	2	370
Borland International	1	250
Turnkey Systems		
Intergraph	5	570
Reynolds & Reynolds	2	225
Mentor Graphics	1	180
ASK Computer Systems	1	150
Triad Systems	1	135

As the market switches to workstations and client/server architectures, only the companies that successfully re-engineer their software or develop or purchase entirely new products in a timely manner will survive. Opportunities exist for new market entrants where large U.S. vendors and VARs may not be able to transition quickly.

E

Conclusions and Recommendations

Exhibit VI-6 outlines INPUT's conclusions for vendors focused on providing application solutions.

EXHIBIT VI-6

Conclusions

- Downsizing is changing the application solutions market
- Enterprise computing is the model for the 90s
- Application solutions market continues healthy growth
- Solutions selling is mandatory
- Application solutions vendors will compete with other delivery modes
- Big vendors will keep getting bigger (consolidation)

Downsizing Is Changing the Application Solutions Market: Functions that previously were handled in a host environment are now being distributed from the host to servers on LANs with the host serving as a data repository. Most of the executives INPUT spoke with expect to downsize key applications within the next five years.

Enterprise Computing Is the Model for the 90s: While the mainframe and midrange systems controlled mission-critical applications in the past, the PC was the domain of personal productivity and analysis tools. Today, the trend is toward downsizing host applications and making use of all three of these platforms, using the hardware that is most functional for a particular application. Platforms are linked through networks and data is integrated through the use of data base management systems.

Continued Growth in the Application Solutions Market: Downsizing and client/server architectures have created demand for new products that operate in those environments. The success of graphical user interfaces, in particular Windows, will contribute significantly to this growth. As the move toward open systems progresses and users demand interoperability, new software solutions will be required. Ongoing upgrades will also contribute to revenue growth.

Solutions Selling Is Necessary to Be Competitive: Application solutions purchasing will be increasingly influenced by the end user. The user will select the application solutions that best address business problems and will expect those solutions to work in the specific operating environment and platforms in use at that firm. While it will be expensive to provide solutions for multiple platforms, this will be required for market leadership.

Application Solutions Vendors Will Be Competing with Other Delivery Modes: As vendors move toward becoming more service oriented, it will become increasingly difficult to differentiate software companies from systems integrators and professional services companies. Turnkey systems vendors in particular will begin to look like software and service providers as they become less tied to specific hardware solutions.

The Market for Application Solutions Is Changing: As a result of these technology and buyer changes, the market is changing in the application solutions area. Features are constantly changing to be competitive, with ongoing updates needed.

Today's software solutions are sold to an ever growing number of users at low prices. Vendors need to expand their distribution channels to reach customers and more carefully target key market segments. Advertising and direct marketing techniques are growing in importance as a way to market products.

Pricing structures are also undergoing dramatic changes as customers rebel against machine-sized tiered pricing structures.

Vendors are becoming more creative in how they market—offering applications suites and bundling software with hardware.

Big Vendors Keep Getting Bigger: In an industry where small companies still are plentiful, the leaders are achieving dominance, which affects the ability of smaller vendors to compete. Growth has been achieved through acquisition and through expansion in the marketplace. Alliances and cross-marketing agreements are vehicles used to increase market penetration. This leaves the smaller companies to fill niche markets or align themselves with another, more dominant vendor with complementary products.

Recommendations are listed in Exhibit VI-7.

EXHIBIT VI-7

Recommendations

- Offer customer-oriented products
- Develop for multiple platforms
- Re-evaluate marketing/sales strategies
- Offer flexible and competitive pricing options
- Form strategic alliances
- Support standards as developed

Offer Customer-Oriented Products: End users are becoming the key customers. Those customers know what they want an application to accomplish, but they don't want to worry about the systems behind the application. Users will increasingly expect plug-and-play products along with templates for easy tailoring and modification. They will want products that are scalable to be used on multiple platforms. Products need to be easily maintained and reliable. Network capability and compatibility with object-oriented environments also will be important factors.

Re-evaluate Marketing Sales Strategies: To address the needs of the end user, the application solutions vendor needs to position itself as more than a product manufacturer, but as a service provider. Vertical markets that can benefit from specific vendor products should be targeted with industry-knowledgeable people hired to sell to that market.

Vendors should offer applications through packages, such as applications suites and bundled with hardware. This increases market penetration and provides an incentive to the customer to maintain an ongoing vendor relationship.

Offer Flexible and Competitive Pricing Options: Buyers have already rebelled against traditional tiered pricing structures, and even market leaders like IBM and Computer Associates International have had to bow to that pressure.

Pricing is a complex issue today as new technologies and changes make old pricing structures inequitable. Vendors will need to continually re-evaluate their approach to pricing, to be competitive and achieve adequate profit margins.

So what works?

Form Strategic Alliances: Vendors must be able to sell to a variety of customers at a tactical as well as strategic level. In order to do this, most vendors need to form alliances with firms that have expertise they lack. Alliances are particularly important for the success of the smaller niche vendors, which may lack the marketing abilities to go it alone.

As traditional applications markets mature, vendors will need to diversify their product offerings to meet needs for new products. Companies like Microsoft are using acquisition as a means to gain market strength in areas where they have not had a presence.

Support Standards as They Are Developed: In this fast changing industry, it has been difficult for true standards to be developed. While users and vendors alike have recognized and been moving toward standards and open systems, it has been a slow process complicated by the myriad of new product introductions that have taken place along the way.

Vendors need to be aware of unofficial standards as they develop and be ready to offer products that conform. For example, when Windows took the market by storm, application solutions providers had to provide Windows products to stay competitive.

It will be even more important for vendors to comply with future industry standards as they are developed. Buyers are seeking solutions that will work on multiple platforms and operating systems. Product standardization will make it easier for buyers to make use of technology as a tool to support their business, while being insulated from the technical aspects of computer systems.

In order to support a multivendor and multiplatform strategy, turnkey vendors must either diminish reliance on hardware or support a broad range of hardware platforms. Equipment manufacturers are under more pressure to open up their systems. Customers may still want a turnkey solution, but don't want to feel limited to specific hardware.

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VII

Systems Software Products Market Analysis

Systems software encompasses systems control products, operations management, and applications development tools.

In this Executive Overview, INPUT provides a summary of user issues, trends and driving forces that will impact systems software over the next five years. Furthermore, the summary presents an overall growth projections for systems software products, and draws conclusions about this fast-moving portion of the information services industry.

A

User Issues and Trends

Exhibit VII-1 outlines key issues and trends below.

EXHIBIT VII-1

Systems Software Products
Key Issues and Trends

- Downsizing
- Standards
- Object technology
- Workgroup/workflow automation

Downsizing - INPUT's information systems (IS) model for the 90s movement away from centralized processing towards a client/server environment with significant processing power and intelligence at both the client and server ends. Any platform will be able to function as a client or a server. Applications and the tools to manage them will run on mainframes, minis and workstation/PCs. Departmental applications and prod-

ucts will typically reside on minis, workstations and PCs at the desktop. Desktop users will be interested in personal productivity tools and application development tools, which take advantage of the trend toward more MIPS on the desktop, with better graphics, and higher bandwidth networks connecting the enterprise. End users are, and will continue to be, more heavily involved in the purchase and requirements definition of downsized applications and tools. As a result of these trends, a new set of expectations is emerging in which users expect plug-and-play, scalable software products with built-in network support. Users are not interested or concerned with operating systems; however, current and future users will demand operating system transparency.

Standards - Standards in networking, operating systems, data bases, and the graphical user interface (GUI) look and feel, are becoming important determinants in which companies and products are important players. Downsized users demand interchangeability of data, tools and applications. The current and future user community does not want to limit itself to a single vendor for solutions to its business needs. As standards have developed and become accepted by the user community, sales volumes have increased dramatically. The continuing movement towards operating system, GUI, networking, and data base management systems (DBMS) standards has propelled the workstation/PC market to a much higher compound annual growth rate (CAGR) than corresponding minicomputer and mainframe platform software sales.

Object Technology - Object databases have immediate advantages over existing database technologies. They support complex data types, store procedures with the data, offer reusability to other data base modules, facilitate enterprise modeling, and provide a more natural fit for complex relationships among data types. Limiting the growth of this exciting new technology is a lack of standards, which inhibits the rapid adoption of object-oriented productivity tools. Once a critical mass of object standards has been accepted for the forecast period, OOPS, ODBMS, and object-oriented CASE tools will grow at a rate significantly greater than that of non-object-oriented tools.

Workgroup/Workflow Automation - There are a limited number of pivotal applications that will drive revenue growth in the workstation/PC area higher than minicomputer and mainframe opportunities. Workgroup software, tools and programs that allow individual remote users on PCs and workstations to share data and programs, which are coordinated as part of a collective effort, is an example of such an application. Products such as Lotus Notes are driving demand for application development tools, and operations management tools, in the networked workstation/PC environment. INPUT predicts that key applications built with emerging technologies will drive this platform area into a growth spurt well in excess of the current expectations.

B

Driving Forces

Exhibit VII-2 summarizes the key driving forces for the systems software market.

EXHIBIT VII-2

Systems Software Products
Driving Forces

- Recovering economy
- Downsizing and client/server
- UNIX and software framework
- Integration/interperability efforts
- Emphasis on solutions

Recovering Economy - Recent economic indicators forecast a return to modest growth during 1993, followed by five years of steady growth in GDP. The CONSENSUS report, a respected economic compendium of major economic forecasts, and other economic forecasters, predict real GDP to average 2.5% to 3% from 1993 to 1998.

Downsizing and Client/Server - Offloading the mainframe is a trend that is steadily gaining in popularity. INPUT research indicates that a growing proportion of system software users have already offloaded or are planning to offload some of the workload from the primary processor(s) during the next 12 months. Downsizing requires smaller platforms, many of which are already in place, and new or rewritten applications software products. Movement to client/server architectures has increased, and respondents to INPUT's downsizing survey indicate that most have future plans to include client/server applications and architecture. Despite the initially slow implementation rate reported in 1992, INPUT believes that downsizing and client/server are gaining popularity and will be long-term growth promoters.

UNIX and Software Frameworks - In the 1992 INPUT survey, UNIX implementation was reported as an IS objective for 32% of INPUT survey respondents. On the other hand, implementation of software frameworks such as SAA, NAS or CA90s was reported as an objective for only 20% of respondents. Because UNIX and many software frameworks are still in a formative stage, there remains some confusion regarding their implementation. Therefore, embryonic standards efforts will inhibit growth of systems software expenditures in 1993. Over the long term, however, and perhaps as early as next year, standards will become a growth promoter as rules become more established and more people feel comfortable working with UNIX or other software frameworks.

Integration/Interoperability - LAN and network integration is a major IS objective over the current forecast period. Thus, products and services that enhance multi-vendor and multi-platform computing solutions are becoming timely and popular. In fact, interoperability (of which LAN and networking solutions are a major part) is driving the use of other systems software products such as distributed DBMSs, client/server and cooperative processing models.

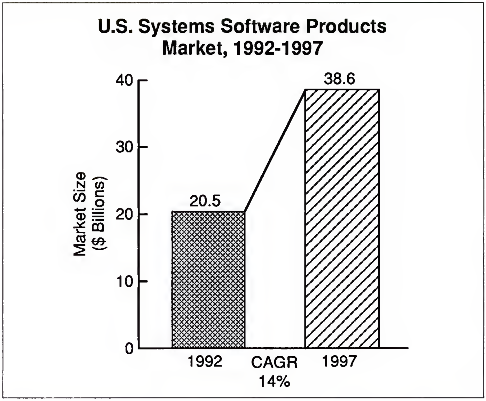
Emphasis on Solutions - Lower costs and improvement of overall productivity is the key technology goal in terms of applications software products. However, this goal is not among top systems software priorities. Since applications software products are viewed as a way to lower functional costs, systems software is regarded more as a background support product, necessary to efficiently and reliably run applications software. However, due to the confusion caused by conflicting standards, new technology approaches, and various stages of product readiness, many users may view systems software as part of the problem rather than part of the solution. Insofar as systems software can be considered as part of the solution, its strong growth will be assured. This implies that systems software vendors will need to work closely with applications software products vendors from both a marketing and sales perspective.

C

Market Size and Forecast, 1992-1997

As noted in Exhibit VII-3, the overall systems software market will grow from $20.5 billion in 1993 to $38.6 billion in 1998, at a CAGR of 14%.

EXHIBIT VII-3



INPUT's forecast for systems software products—a 14% CAGR for the 1993-1998 period—compares to INPUT's applications software products forecast of 14% over this same five-year period. INPUT believes that the kinds of technology shifts that will have a positive impact on the applications software products market will also have a positive impact on systems software products.

In addition, a fundamental shift is occurring that makes the solution aspect of software the number-one priority. Whereas systems software products are considered necessary supporting products, applications software products are more synonymous with solutions.

The fastest growing submodes continue to be applications development tools and operations management tools. Emphasis on applications development efficiency and the trend towards multi-platform, multi-vendor networks and network integration, is fueling this growth.

Even though UNIX's share of the total systems software market remains relatively small (at 16%), the U.S. market for UNIX-related systems software is growing almost twice as fast (25%) as the systems software market as a whole (14%). The U.S. market for UNIX systems software is forecast to reach $6.1 billion by 1998.

D

Vendor Competition

Exhibit VII-4 notes the largest systems software product vendors. The revenue used to calculate the market share for each company, which resulted in their placement on this list, was developed from a combination of INPUT interviews, public financial and product data, and information from INPUT's vendor files. Only non-captive U.S. dollars were considered.

EXHIBIT VII-4

Leading U.S. Systems Software Products Vendors

Vendor	1992 Market Share (Percent)	1992 U.S. Revenues ($ Millions)
IBM	17	3,485
Digital Equipment Corp.	3	610
Microsoft	3	575
Computer Associates	3	545
Novell	2	455
Hewlett-Packard	2	320
Oracle	1	250
Unisys	1	215

IBM continues to have a commanding lead, with a 17% market share, up slightly from 15% in 1991. Revenues for the other seven major vendors vary slightly from last year with the overall total for the group approximately 2% above their 1991 performance. In this market, a bundling of systems software in both hardware and software packages proliferated. A growing population of software vendors with revenues of $100 million or less also accounted for some revenue and market share changes.

Other than IBM, the largest software products vendors controlled no more than 3% of their market, and only six vendors held more than a 1% market share.

However, the big stayed big, and the vendors, noted in Exhibit VII-4, accounted for 31% of the systems software products market.

E

Conclusions and Recommendations

Conclusions - As a result of its analysis of the systems software product market, INPUT concludes that there will be moderate growth in this market from 1993, at a CAGR of 14%, through 1998. INPUT furthermore concludes that the smaller platform operating environment will become more competitive, with viable MS-DOS, OS/2 and UNIX options competing for user acceptance in the general purpose commercial marketplace. Operations management tools will be the fastest growing delivery submode, followed by applications development tools. Mainframes will not disappear entirely, many anticipate, but they will assume new roles. In some cases, mainframes will serve complex enterprise-wide applications. Finally, as users retain and use preferred software products, maintenance and license fee renewals will continue to generate a significant portion of system software product revenues.

Recommendations - As with many markets with strong technical and market continuity, recommendations for success in the systems software products market are not revelationary, and essentially reflect a continuation of the successful practices of the last few years. Specifically, customer service, and all the aspects of product quality, will continue to be key determinants of the competitive advantage. Vendors ignore the service and support needs of their clients at their own risk. Systems environments tend to be slow-moving, standards-driven and subject to pressures from hardware manufacturers and established vendors. Be an active participant in standards-setting groups, and recognize that change will slowly occur. Acquisitions have been common over the last few years, especially as the strong consumed the weak during depressed economic times. Alliances are also becoming more common. As a result, INPUT feels that those smaller public vendors who want to be independent will have to establish alliances in order to avoid being acquired by larger companies. Consolidations can be expected to continue throughout the decade; however, in most cases, they will reflect long-term positioning rather than just a desire to increase market share.

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VIII

Processing Services Market Analysis

A

User Issues

The economy is still the major business concern of users of processing services, as shown in Exhibit VIII-1.

EXHIBIT VIII-1

User Issues

- Economy
- Cost reduction
- Changing technology
- System compatibility
- User friendliness
- Obtaining/keeping technical staff

Industries that have traditionally made extensive use of processing services such as banking/finance and transportation have been going through difficult economic times. Consolidations have been ongoing and many companies report that IS spending has at best remained constant. Many of the buyers contacted by INPUT indicated that increased spending is dependent upon the duration and magnitude of the rebound in the economy.

As a result, controlling costs is still a critical issue for companies in these industries. This affects the demand for processing services both positively and negatively. On the one hand, buyers are cautious about investing in equipment and internal systems solutions. However, buyers are also less willing to expand their use of processing services or add features that will increase costs. Therefore, while processing services vendors are less likely to lose business to in-house systems in these economic times, they are also not seeing dramatic increases in demand.

Changing technology is another issue of concern to buyers today. The constant changes in capabilities, standards, and costs has led to a great deal of confusion. It's difficult for buyers to know when to invest in a new application or platform. This uncertainty can delay decisions to migrate applications from a processing services to an in-house solution.

Users are also concerned with system compatibility. As they evaluate open systems and UNIX solutions, they want to make sure that their decisions today will be compatible with new standards as they are developed. They are interested in how the vendors they do business with are planning to handle such developments.

User friendliness is another major concern. Processing services users have been drawn toward PCs in recent years, due to developments in graphical user interfaces and "user friendly" operating systems.

Difficulty in obtaining technical staff is a fact of life for IS departments today. With technology changing rapidly, the skills required to manage this technology are also changing quickly. Simply put, there is a national shortage of people with the necessary skills to manage systems. This is one factor driving companies to choose to outsource information systems (IS) operations to third-party facilities or systems operations (SO) management companies.

B

Driving Forces

There are a number of forces driving the continued demand for processing services. These are listed in Exhibit VIII-2.

EXHIBIT VIII-2

Driving Forces Supporting Use of Processing Services

- Networking requirements
- Vendor expertise
- Rapid application enhancement
- Government requirements
- Business dependence on information

The global marketplace is leading to an increased need for networking to allow communication and exchange of data among both sites and countries. Certain applications that involve multiple data entry/delivery points could require changes to network plans if this work was handled in-house. Buyers look to processing services providers to accommodate changing networking requirements that could be time consuming and expensive to implement in-house.

The tendency of users to rely on both the knowledge and application systems of their processing vendors is a driving force for continued use of processing services. For many applications, the vendor takes responsibility for reporting to government agencies or offices, banks, and other necessary external functions. Particularly for applications that are nonstrategic, such as payroll, off-loading such responsibilities presents an attractive option. In addition, the knowledge that processing vendors have of certain industries, particularly banking, has led users to seek processing as well as systems operations services from these vendors.

The need for rapid changes to services applications such as payroll and bank application systems has also been a driving force for the use of processing services.

- Buyers are interested in using vendors' experience in making frequent changes to applications software systems to meet the needs of government agencies and clients.

- Buyers are also interested in using the ability that processing vendors have developed in scheduling changes in applications software, as well as massive upgrades in processing capabilities and networks. Processing services vendors offer advantages over in-house systems in this regard. Processing services providers are more accustomed to making changes, since they serve a number of clients and are always scheduling sets of changes. In addition, larger vendors are also constantly performing tradeoffs between the use of existing capabilities and upgraded equipment, systems software, and networks, when changes in application products are considered. It is difficult for users to accommodate the same level of planning.

Federal government requirements also promote growth in processing services. There is a growing trend to require information to be provided to the government on-line. Examples include Medicare health claims processing, Fannie Mae applications, and regulatory compliance documents. In addition, the government, along with insurance companies and customers, have set standards for disaster recovery planning that are driving the demand for recovery services.

The greatly increased dependence on the use of information technology that has taken place in industry and in government has been a driving force that affects several modes of processing services. For instance

- Companies using payroll, credit card, and other processing services report that a leading benefit of such processing is having a vendor worry about and guard against interruptions and loss of data in these operations.
- Banking organizations that use processing services or systems operations report that one of the benefits is the increased opportunity for continuous operation.
- The magnitude of manmade and of natural disasters in recent years has made companies more aware of how interruptions in information systems can affect their business. This had led to dramatic increase in the use of disaster recovery services.

The growth of electronic data interchange (EDI) is leading American business away from paper transactions and toward electronic delivery systems. With this growth will come significant increase in the number of electronic transactions as compared with paper transactions. EDI technology has the capability to increase demand for processing services to support such transactions.

While there are many factors supporting continued use of processing services, there are a number of factors working in the other direction. The most important factor inhibiting growth in processing services is the price/performance of PC/workstations today and the increased availability of software. The cost of micro technology has become more affordable, even to the smallest of businesses. Complex calculations that previously required mainframe capability now can be handled on high-powered workstations. Increased availability of low-cost software makes use of PCs, for a variety of applications, an attractive option. In addition, the state of the economy has led to slashes in IS budgets, inhibiting growth in processing services along with other delivery modes.

The shortage of technical skills that makes it difficult for companies to maintain in-house systems also has a negative effect on processing services vendors. The support that customers expect from their processing services vendors, such as enhanced applications and networks, require technically trained staff. To increase their business, processing services vendors need the staff to support that growth.

Consolidation within the industries using processing services has, in some cases, created the economies of scale needed to invest in internal solutions. This has resulted in erosion of business for processing services.

C

Market Size and Forecast, 1992-1997

As illustrated in Exhibit VIII-3, actual user expenditures for 1991 were $390 million less than last year's forecast of $17 billion. Though the effect of the recession had been anticipated, it was expected that a turnaround would be realized sooner.

EXHIBIT VIII-3

Processing Services Market Overview
($ Billions)

1991 Outlook		1992 Outlook
1991 Forecast - 18.3	versus	1991 Actual - 17.9
1992 Forecast - 19.7	versus	1992 Actual - 19.1
1991-1996 Forecast Growth Rate - 8% (CAGR)	versus	1992-1997 Forecast Growth Rate - 8% (CAGR)

- The continuation and depth of the recession caused actual processing services expenditures for 1992, $19.1 billion, to fall considerably short of the 19.7 billion that was forecast.

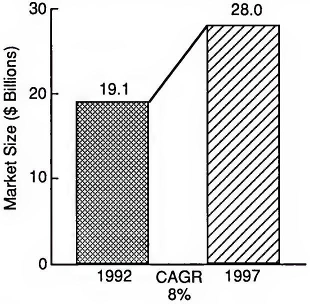
- While the recession has resulted in adjustments in revenue for 1991 and 1992, INPUT estimates that the CAGR will remain at 8% for 1992-1997.

The compound annual growth rate of 8%, as shown in Exhibit VIII-4, is the lowest CAGR for any information services delivery mode. This low growth rate attests to the fact that processing services is a mature market.

Processing services is expected to continue to rank among the top delivery modes in user expenditures in 1997, since it reached a high expenditure level before its growth rate began to slow.

EXHIBIT VIII-4

U.S. Processing Services Market, 1992-1997



D

Vendor Competition

There are both differences and similarities among the top five processing vendors, listed in Exhibit VIII-5, that reflect the variation of business among other vendors.

EXHIBIT VIII-5

Leading U.S. Processing Services Vendors, 1992

Rank	Vendor	Estimated Processing Services Revenue ($ Millions)
1	ADP	1,480
2	First Financial Management Corp.	1,400
3	First Data Corp.	800
4	Covia	300
5	Ceridian	240

- Two vendors, American Express Information Services Company (ISC) and Covia, are subsidiaries of corporations with most of their business in non-information-services activities. About one-third of the top 20 processing vendors are in this category.

- Three of the top five vendors are information systems companies with significant amounts of business devoted to processing activities. About two-thirds of the top 20 vendors would fit this description.

- Three of the top five vendors serve the banking and finance market, and one of these—Automatic Data Processing (ADP)—also serves the human resources (payroll) market. Banking and finance and payroll are two of the largest industry markets served by processing services. Over half of the top 20 vendors serve one or both of these markets.

- This delivery mode does not seem to be dominated by the top vendors as other modes are, such as network services, systems integration, or professional services. The total of the top five professional services vendors' revenues accounts for less than 25% of the total market.

- However, service to many industry markets or submarkets is dominated by a small group of vendors, such as ADP, Ceridian, Paychex, and a few other vendors in payroll, and groups of vendors in credit card and bank processing.

E

Conclusions and Recommendations

1. Conclusions

Exhibit VIII-6 summarizes INPUT's conclusions regarding the market for processing services.

EXHIBIT VIII-6

Conclusions

- Processing services is a mature but stable market.
- Vendor expertise provides added value.
- Key applications are driving growth.
- Networking can offer a competitive edge.
- Outsourcing trend is positive for processing services.

The processing services business is a mature but stable market. While processing services has been the largest of the delivery modes that INPUT reviews, its rate of growth has been steadily declining, due to the growing capability of in-house systems alternatives. As discussed earlier, the lingering downturn in the economy has had a significant effect on processing services since many companies have been reluctant to increase expenditures in this area.

There is a base of customers that is expected to remain stable, however, and processing services *has* its place in the plans of IS organizations. Many companies rely on vendors because of certain expertise that the vendor offers or economies of scale possible due to shared system use. These customers recognize the value added by the processing services vendor and will continue to rely on them.

Certain applications are expected to drive increases in demand for processing services. These include credit/debit card usage, claims processing, billing services, and disaster recovery.

The networking capabilities of processing services vendors can also provide incentives for buyers to continue to rely on their services.

The outsourcing trend is a positive one for processing services vendors. As more companies modify their IS strategies to "buy" instead of "make," processing services vendors have an opportunity to capitalize on this trend. For instance, as companies consider re-engineering and downsizing applications, they often decide to off-load non-strategic applications to outside service providers and concentrate internal efforts on mission-critical applications. This trend will continue to have a positive effect on processing services.

Though processing services is unlikely to return to the dramatic rates of growth experienced in the past, its ability to meet unique application needs will support a stable customer base. Its immediate continued growth is dependent upon the recent improvment in the economy and the ability of processing services vendors to capitalize on trends in areas such as outsourcing, downsizing, and networking.

2. Recommendations

Since processing services is a mature market, vendors must look to expanding service if they wish to grow, as shown in Exhibit VIII-7.

EXHIBIT VIII-7

Recommendations—Vendors

- Expand service offerings
- Specialize in niche or vertical markets
- Enhance applications and add features
- Maintain sophisticated networking capability
- Develop services to complement new technologies

Many vendors are also providing systems operations, systems integration, and professional services, whereas others offer application software. Offering a variety of services provides three important benefits. First, it provides opportunities to increase revenues at a higher rate than would be possible if only processing services were provided. Second, it puts the vendor in a position to be aware of opportunities to increase processing services revenue. Third, it makes the vendor more aware of customer needs for new services, which can lead to more revenue.

One of the key reasons that customers use processing services is because of the expertise that vendors bring to the table. Vendors should continue to specialize in key application niches or vertical markets as they expand service offerings. They should continually be looking for ways to capitalize on their known reputation in one area, to expand services into a related area.

For processing services there will always be some erosion of the customer base as companies grow and invest in internal systems. Vendors are faced with the need to constantly upgrade their capabilities and add features and new pricing options to bring in enough new business to replace what erodes and meet growth targets.

Networking can be a key advantage that processing services vendors should emphasize with prospective buyers. It can be difficult for companies to continually adjust their own networks to accommodate changes in usage traffic patterns and work or transaction volumes.

To compete effectively in the years ahead, vendors of processing services are going to have to find a way to co-exist with technologies such as distributed processing, client/server technology, and wireless communications. Buyers are demanding higher levels of service at competitive prices. The vendors that achieve growth will be the ones that can accommodate these needs.

Processing services vendors are also facing some challenges ahead. On the one hand, customers are continually being offered new service alternatives, at competitive prices, that compete with processing services. To remain competitive, vendors will have to continually update applications, networks and service levels. Yet such upgrades require investment, and buyers of processing services are typically price conscious and reluctant to pay higher rates for improved service.

Processing services vendors must expand their service offerings to survive and grow in the marketplace. The expertise which they have developed over the years in their targeted industries/applications can provide a strong base upon which to enter new business areas.

In the future, the dividing lines between processing services, systems operations, and other third-party services will blur. The successful vendors of tomorrow will be those that can work side by side with upper management in their targeted markets to develop solutions to business problems. These solutions will make use of both in-house systems and outside services. The vendors that offer the most value will be those that can address the customer's needs with the most cost-effective array of options.

IX

Network Services Market Analysis

A

User Issues

As Exhibit IX-1 shows, the depressed revenues and earnings of companies have been a major issue affecting buyers of network services. Although, certain IS budgets are starting to show signs of improvement.

EXHIBIT IX-1

Network Services
Major Buyer Issues

- Revenues and earnings remain flat, but recession waning
- Desire for increased vendor productivity
- Need to interconnect disparate network technologies
- Need for network planning
- Recognition of product/service need

Listed in order of importance.

The overall result of this recession has caused buyers to become more interested in locating competitors that can deliver similar services at reduced prices.

Buyers are also interested in obtaining additional services and aid from network services vendors as part of buyers' present service and fee agreements. Buyers want a means of improving productivity, as well as a way to offset reductions in user staffs.

Upgrades in the interfacing of a given user's multiple network technologies (LANs, MANs, and WANs) will drive networks to be redesigned. This redesign effort will support the need for all of these networks to interoperate, which is sometimes referred to as enterprise networking.

Standards in network technology are being developed to allow common interface points to facilitate the interconnection of multiple network platforms.

Buyers have also shown more concern about planning and justifying the use of network services, as noted in Exhibit IX-1.

While vendors have attempted to meet these developments in the marketplace, their earnings have suffered. This is due to increased competition, their own downsizing efforts, and their attempts to supply these additional services.

According to several corporations that INPUT contacted, the increased use of network systems can put pressure on the present or planned use of network capabilities. INPUT found that as the user's need for increased traffic and connectivity between company sites grew, vendors had difficulty in meeting throughput requirements.

The positive element in buyer attitudes is the recognized need for network services.

- In this marketplace there is not a strong recessionary reaction that would lead to an aggregate reduction in the use of electronic information services, value-added networks, EDI, or other network applications, although the recession has caused individual firms to limit planned use.
- Buyers feel that these services are a necessary way of doing business rather than an enhancement to business activities.

B

Driving Forces

One of the paramount forces driving the network services market is the increasing demand for electronic information, as indicated in Exhibit IX-2.

- Additional information about materials, production processes, drugs in use, business activity, financial markets, and a host of other topics is constantly becoming available and producing an increase in the amount of on-line information.

- The on-line information in use can have setbacks related to the economic conditions of users, more effective methods of using information, limitations in the auditing and control of information, and other factors, but these factors are not causing users to project a reduction in EIS services.

EXHIBIT IX-2

Network Services Driving Forces

- Increasing need for electronic information
- Growing pressure to use network applications
- Improving network capabilities
- Lack of expertise in network technology and applications
- Potential revenues and savings
- Increased interest of end users

Listed in order of importance.

The forces producing increased use of EDI, electronic mail, and other network applications stems predominantly from two trends:

- Pressures by corporations on their suppliers or customers

- The desire to save time and funds by moving information electronically

Constantly improving network capabilities that make it possible to contact more end points in the U.S. and globally, and the technology leading to faster access and transmission of data, are the major forces driving the use of EIS and network applications:

- Electronic mail and EDI can reach more company locations, clients, and suppliers.

- According to users, the increased speed in obtaining information that has occurred in the last few years has resulted in more opportunities to gain revenues and save costs.

Many users do not have sufficient ongoing research and development of network capabilities or enough technically trained staff to take advantage of increased connectivity or speed of transmission. Major corporations indicate that it is difficult to address the scope of technological change. This uncertainty is another force that drives the use of network services vendors.

Although many users talk about network services as a way of doing business, users expect that EIS and network applications will increase revenues or reduce costs:

- A regional sales manager at Merrill Lynch stated that it would be impossible to handle work for clients without having on-line quotes. He pointed out that the quality of his quotation systems was partially responsible for his performance in selling.
- Several users who emphasized the convenience of using EDI for ordering and payment pointed out that cost savings were their primary motivation.
- A systems planner at a large energy company has promoted the use of network services as the goal for many administrative functions, but he noted that monetary justifications were the primary drivers for expanded use of these services.

End users show increasing interest in network services, and this interest is also a force leading to increased use of these services.

- The energy company referred to above has made use of VANs to provide customers with on-line information that can help customers order products. End-user demands led to this use of VANs.
- Several vendors report that users have been active in suggesting the use of additional EIS, EDI, and videotext services and other network applications.

C

Market Size and Forecast, 1992-1997

In response to an extended economic downturn, pressures continue on the revenues and earnings of some vendors in the marketplace . However, Exhibit IX-3 illustrates a continuation of relatively favorable prospects and compares differences in the outlook of the market between 1991 and 1992:

- The $9.4 billion 1991 forecast for user expenditures was more optimistic than the actual expenditures in 1991.
- The 1991 preliminary forecast for user expenditures for 1992 projected $10.8 billion as opposed to an actual of $10.4 billion. This allowed for a slowing in growth due to the slow recovery reflected in the 1992 performance. The forecast for growth during the next five years remains at 17%.

EXHIBIT IX-3

Network Services Market Overview
($ Billions)

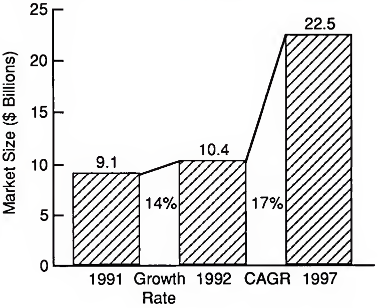
1991 Outlook		1992 Outlook
1991 Forecast - 9.4	versus	1991 Actual - 9.1
1992 Forecast - 10.8	versus	1992 Actual - 10.4
1991-1996 Forecast Growth Rate - 17% (CAGR)	versus	1992-1997 Forecast Growth Rate - 17% (CAGR)

The market for network services is growing from a 1991 level of $9.1 billion in user expenditures to $10.4 billion in 1992—a growth rate of 14%. User expenditures will grow at a compound annual growth rate (CAGR) of 17% during the next five years to reach $22.5 billion in 1997.

The 1991/1992/1997 forecast is graphically shown in Exhibit IX-4 and reflects the continuing impact of the slow recovery, regulatory pressures, and the growing maturity of the market.

EXHIBIT IX-4

U.S. Network Services Market, 1991-1997



The continuing expansion in network services is due to the fact that growth can assist in revenue generation, or cost reduction, while creating a more automated way of conducting business.

- Network applications provide electronic means, rather than paper means, of handling business with customers, suppliers, service companies, and government offices—as well as with other offices in an organization. Instructions, messages, data, and payments can be handled more quickly and save time and costs.

- Information necessary to make decisions, conduct research, aid clients, or keep processes functioning, can be accessed more rapidly and on an automated basis.

D

Vendor Competition

The top five vendors of network services in Exhibit IX-5 include only vendors of one submode of network services, EIS. There are two network applications vendors among the next five largest vendors (not shown in Exhibit IX-5).

Four of the top five vendors have EIS products for financial subjects, and the other vendor, Mead Data Central, has EIS products that offer legal information and news.

- Two of the vendors, TRW and Equifax, offer credit-related EIS.

- Dow Jones Telerate and Dun & Bradstreet offer financial details and corporate product and market information.

Four of the top five vendors are subsidiaries of companies that have substantial revenues in non-information services areas. Four of the next five vendors have the same characteristic.

Only two of the top five vendors offer other modes of information services. Dun & Bradstreet offers software products, and Equifax offers processing services as a result of its acquisition of Telecredit.

The top five vendors continue to control 29% of the U.S. market for network services, and the next five vendors control about 16% of the market. Altogether, the top 10 vendors control just under half of the market.

EXHIBIT IX-5

Leading Network Services Vendors

Rank	Vendor	Estimated Revenue ($ Millions)	Market Share (Percent)
1	TRW (including Chilton)	745	7
2	Dow Jones Telerate	620	6
3	Dun & Bradstreet	545	5
4	Mead Data Central	495	5
5	Equifax	435	4

A most significant competitive event occurred in late 1992. It was the combination of the network services units of IBM's Integrated Systems Solution Corporation (ISSC) and Sears Technology Corporation (STC). The new partnership is named Advantis, with IBM's ISSC division owning 75% of the venture. While the venture's combined revenue equals $1 billion, INPUT estimates the partnership's actual network services market revenues to be somewhat less, exclusive of captive internal revenues.

Based on this revenue estimate, the Advantis organization will become a major player in INPUT's 1993 ranking. This represents a significant repositioning within the network services marketplace.

E

Conclusions and Recommendations

1. Conclusions

As indicated in Exhibit IX-6, one conclusion about the network services market is that the recession has had an impact on business in almost all industries. Fortunately, recent economic indicators show a positive trend in business improvement, signaling an end to one of the most protracted economic downturns in U.S. history.

However, the impact of the recession was more than offset by a significant and continuing need for network services. This was due to the increasing need for electronic information.

- Information about materials, production processes, business activity, financial markets, and a host of other topics, contribute to the increases in the amount of on-line information.

- In addition, forces driving the increased use in EDI, electronic mail, and other network applications, stem from pressures of corporations on their suppliers or customers, and/or the desire to save time and funds by moving information electronically.

In conjunction with the economic downturn, there has been a significant trend in business downsizing. This reduction in network size and cost has created a need for better network planning.

Having fewer capable resources, users have more difficulty analyzing and re-engineering the needs of network service requirements.

Vendors have attempted to meet this development by providing increased aid in planning these network services.

EXHIBIT IX-6

Conclusions and Recommendations

- Conclusions
  - Recession's impact waning
  - Healthy growth continues
  - Downsizing and re-engineering
  - Potentials of CD ROM technology
  - Range of vendor markets and services to expand
  - Increased use of EDI/electronic commerce
- Recommendations
  - Expand markets and/or services
  - Provide global network services
  - Offer product variations, e.g., CD ROM
  - Prepare for multimedia transition

The interaction of technology and business has had a noticeable impact on network services:

- Significant developments in the use of CD ROM technology have led to the consideration and/or use of CD ROMs for economic, technical, legal, and other information that does not require real-time updates.

- Information that is more static can be provided much more economically on CD ROM than from on-line data bases. There are now economic and financial data bases available on CD ROM which include, in some cases, data that is also available from on-line data bases.

The addition of Advantis, a new major full-service player in the vendor arena, will cause network services vendors to re-evaluate their offerings.

Many of the vendors of network services have offered a limited number of EIS or network application products and/or sell products in a limited number of markets. Vendors who serve a wide range of products and industries, such as CompuServe, GEIS, and Advantis, will be better positioned in the marketplace.

Another observation that should be made about the network services market is the increase in user demand for to employ EDI or related electronic commerce services.

2. Recommendations

Network services vendors should consider and evaluate the actions of other vendors offering products in their delivery mode.

- Vendors should consider the benefits derived from moves made by other vendors who have used mergers or alliances with those in other service modes (including transaction processing and network connectivity) to help them increase services, improve productivity, or share costs. The recent IBM/Sears alliance (Advantis) has provided such benefits.

- It is becoming apparent that users are focusing more on their core businesses than in the past. Vendors can take advantage of this need by offering a tailored service that performs all transaction/network services, including the ancillary business functions currently performed by the user.

Because users need to meet the demands of a global economy, their organizations will take on international functionality.

- Network service capabilities should be available to support these inevitable requirements. For the smaller niche market vendor, alliances with foreign carriers may be beneficial.

An additional service that vendors of EIS should consider is providing data on CD ROM together with new, related software products.

- Rather than letting competitive vendors provide this medium for static data contained in on-line data bases, vendors of EIS could provide CD ROMs along with software products that could organize or provide references between the on-line data and the data on the CD ROMs.

With technology changing so rapidly, it is imperative that vendors stay in tune with its evolution and plan for potential opportunities.

- Vendors need to position themselves to support any-to-any network connectivity. This connectivity will include the interoperability of EDI, electronic commerce (E-mail), imaging, and even the possibility of supporting segments of a user's enterprise networks.

As multimedia technology develops and associated pricing comes down, users will begin to make significant commitments to this audio, image, full motion video, and textual medium. It has been suggested that the most logical springboard to create this service would be electronic mail.

A

Index of Companies

The following companies are referenced in this report:

- ADP
- Advantis
- American Express-ISC
- Andersen Consulting
- ASK Group
- Booz-Allen
- Borland

- Ceridian
- Chilton
- Compuserve
- Computer Associates
- Coopers & Lybrand
- Covia
- CSC

- Digital Equipment
- Dow Jones Telerate
- Dun & Bradstreet Software

- EDS
- Equifax
- First Data Corp.
- First Financial Management

- G.E. Information Services

- Hewlett-Packard

- IBM
- IBM-ISC
- Intergraph

- Logicon
- Lotus

- McKinsey & Co.
- Mead Data
- Mentor Graphics
- Microsoft

- National Education and Training Group
- Novell

- Oracle

- Paychex
- PRC

- Reynolds and Reynolds

- Systematics

- Triad Systems
- TRW

- Unisys

- WordPerfect